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ISSAM M. ABU-SALIM <i>Syllable Structure in Palestinian Arabic</i>	1
CHIN-CHUAN CHENG <i>A Quantification of Chinese Dialect Affinity</i>	29
CHIN-CHUAN CHENG <i>The Esperanto of El Popolo Cinto</i>	49
MOHAMMAD DABIR-MOGHADDAM <i>Passive in Persian</i>	63
HANS HENRICH HOCK <i>Aux-cliticization as a Motivation for Word Order Change</i>	91
MICHAEL KENSTOWICZ <i>Germination and Spirantization in Tigrinya</i>	103
CHIN-CHUAN CHENG AND CHARLES W. KISSEBERTH <i>Tone-bearing Nasals in Makua</i>	123
SHILOMO LEDERMAN <i>Problems in a Prosodic Analysis of Hebrew Morphology</i>	141
BRUCE ARNE SHERWOOD <i>Statistical Analysis of Conversational Esperanto, with Discussion of the Accusative</i>	165
BRUCE ARNE SHERWOOD <i>Variation in Esperanto</i>	183

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TABLE OF CONTENTS

Issam M. Abu-Salim: Syllable Structure in Palestinian Arabic. . . .	1
Chin-Chuan Cheng: A Quantification of Chinese Dialect Affinity. . .	29
Chin-Chuan Cheng: The Esperanto of El Popola Ĉinio.	49
Mohammad Dabir-Moghaddam: Passive in Persian.	63
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Michael Kenstowicz: Gemination and Spirantization in Tigrinya . . .	103
Chin-Chuan Cheng and Charles W. Kisseberth: Tone-bearing Nasals in Makua	123
Shlomo Lederman: Problems in a Prosodic Analysis of Hebrew Morphology.	141
Bruce Arne Sherwood: Statistical Analysis of Conversational Esperanto, with Discussion of the Accusative.	165
Bruce Arne Sherwood: Variation in Esperanto	183

SYLLABLE STRUCTURE AND SYLLABIFICATION IN PALESTINIAN ARABIC*

Issam M. Abu-Salim

In this paper, I argue that the syllabification mechanism in Palestinian Arabic (PA) involves not only rules to define syllable boundaries and assign internal structure to the syllables contained in the utterance, but also rules of vowel shortening and vowel insertion, which are similar in effect to some phonological rules in PA, that have to apply at the time syllable structure is assigned. These rules, as discussed in section 3, explain different cases that cannot be accounted for by the phonological rules proper which apply after the segmental string is syllabified. Section 1 deals with the syllable inventory of PA and section 2 deals with the question of how the various syllable types are to be represented in underlying structures. It is argued that McCarthy's (1979a,b) account of superheavy syllables is inadequate, and that the CVVCC syllable is better analyzed as part of the underlying syllable inventory of PA. Finally, in sections 4 and 5, a brief account of resyllabification and ambisyllabicity is given.

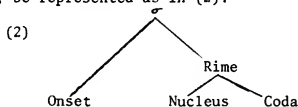
1. Syllable Types and Their Structure

Previous studies of Levantine Arabic, and of Arabic in general, (e.g., Al-Ani & May 1973, Broselow 1979, 1980, McCarthy 1979a,b, 1980, Selkirk 1981) have shown that the following syllable types occur as part of the phonological system of Arabic:

- | | | | | |
|-----|----|------|-------------------|-------------------|
| (1) | a. | CV | <u>ka</u> .tab | 'he wrote' |
| | b. | CVV | <u>raa</u> .sal | 'he corresponded' |
| | c. | CVC | <u>mad</u> .ra.se | 'school' |
| | d. | CVVC | <u>ʕaaf</u> | 'he saw' |
| | e. | CVCC | <u>?uxt</u> | 'sister' |

Most of the studies cited above are based on the surface manifestation of the various syllable types which occur phonetically in one dialect or another. Thus they exclude other syllable types such as CVVCC from being considered as part of the syllable inventory of Arabic. It is true that this syllable type, i.e., CVVCC, does not show up phonetically, I believe, in all the modern dialects of Arabic.¹ But there is ample evidence to suggest that this syllable type is better analyzed as part of the underlying syllable inventory of PA and, possibly, some other Arabic dialects. Some phonological processes, particularly shortening of stressed vowels, will be satisfactorily explained if reference to this syllable type is made at some point in the phonological derivation, as will be discussed in detail later. Hence, a distinction will be made throughout this study between underlying (or phonological) and surface (or phonetic) syllables. The two sets of syllable inventories will be linked by certain rules, similar in effect to the phonological rules proper, which will be treated as part of the syllabification rules of the language. These rules will be discussed in detail in section 3 of this paper.

Syllable structure has been discussed in various works. Early (e.g. Pike & Pike 1947, Hockett 1955, and Fudge 1969) as well as recent studies (e.g. Newman 1972, Halle 1978, Halle & Vergnaud 1979, McCarthy 1979a, b, Kiparsky 1979, 1980, Selkirk 1980, and others) have asserted that syllables have internal immediate constituent structures of their own, similar to syntactic structures, that can be represented in terms of binary-branching tree diagrams. The first major division is into onset and rime. The onset consists of any consonant or consonant cluster preceding the syllable nucleus, and the rime includes all remaining elements. The rime in turn divides into two parts, the syllable nucleus and the coda (the final consonant or consonant cluster). The syllable structure could, thus, be represented as in (2):



Evidence for this internal structure for the syllable in Arabic is not difficult to find. The stress rules of Arabic, for instance, refer to one property of the syllables contained in an utterance: their weight. A syllable is said to be heavy only if its rime is heavy, and vice versa. The onset, regardless of its internal structure, plays no role in determining syllable weight for purposes of stress assignment. Moreover, it will be shown below that some co-occurrence restrictions exist between the nucleus and the coda in terms of their heaviness. No such restrictions occur between the nucleus and the onset, which gives further evidence for the divisions between syllable constituents in (2) above.

Now, given the syllable template in (2) and the terminology associated with it, and disregarding CVVCC syllables for the moment, the syllable types in (1) will have the following internal structures, where O, R, N, and K stand for onset, rime, nucleus, and coda, respectively:



These structures demonstrate the following characteristics of the syllable structure of Arabic. First, the onset, as opposed to the coda, is an obligatory constituent of all the syllable structures in (3); each syllable must begin with a consonant, which implies that vowel-initial syllables are not permitted in Arabic. In all the syllable types above, the onset consists of only one consonant. There are cases, however, where the onset consists of two consonants, which may give rise to other syllable types in some Arabic dialects,³ as shown by the following examples:

- (4)
- | | | | |
|----|-------|------------------|-----------------|
| a. | CCV | <u>sta</u> .lam | 'to receive' |
| b. | CCVV | <u>ktaa</u> .bi | 'my book' |
| c. | CCVC | <u>sta</u> ?.bal | 'to welcome' |
| d. | CCVVC | <u>blaad</u> .na | 'our countries' |
| e. | CCVCC | <u>mfakk</u> | 'screw driver' |

These syllable types are highly restricted in distribution; they occur only in phrase-initial position. Historically, words with initial consonant clusters in PA, as well as in other Arabic dialects, may be said to have been developed from corresponding words with no such clusters in Classical Arabic through the application of some diachronic rules deleting vowels or consonants or both in some environments. The Classical Arabic words corresponding to those in (4) are given in (5) below, where the deleted segments which created the initial consonant clusters in (4) are underlined.

- (5) a. ʔistalama
 b. kitaabi
 c. ʔistaqbala
 d. bilaaduna
 e. mafakk

Synchronically, however, there are no alternations to support deriving these clusters from underlying representations without syllable-initial clusters. There are no cases where phrase-initial consonant clusters in words like those in (4) alternate with, say, CVC sequences in the same position. Meanwhile, there are other instances of phrase-initial heavy onsets which are derived synchronically after the application of a syncope rule which deletes unstressed high vowels in nonfinal open syllables, as shown by the following examples:

- (6) a. ʃirib 'he drank'
 b. ʃrifna (←/ʃiribna/) 'we drank'

Again, such derived heavy onsets do not occur except initially in phrases or after a pause in words.⁴ Thus, due to their limited distribution, the syllable types in (4) can be considered as special instances of those in (1), and accounted for by a rule adjoining the initial consonant to the following syllable at the point where syllable structure is assigned, as discussed further in section 3.

Second, the syllable nucleus may consist of a short vowel as in (3a, c, a) or a long vowel as in (3b, d), where length is indicated by gemination on the segmental level. Structurally, vowel-length contrast is represented in terms of branching vs. nonbranching nodes, where short vowels are associated with nonbranching nodes and long vowels with branching nodes in the syllable tree.

Finally, the coda is the only optional constituent of the syllable in Arabic. It may consist of zero consonants as in (3a, b), one consonant as in (3c, d), or two consonants as in (3e). No dialect of Arabic has been reported to have syllable codas composed of more than two consonants.

The syllable types in (3d) and (3e) indicate that either the syllable nucleus or the coda, but not both, may branch in any particular syllable. This indication is consistent with the fact that syllables of the form CVVCC are not realized phonetically in PA.⁵ Classical Arabic, on the other hand, was reported to have such syllables, exemplified by words such as maarr 'passer-by'. This syllable type, as mentioned earlier, is the least frequent in Classical Arabic, appearing only rarely in its pausal form in phrase final position (Al-Ani & May 1973:118). Speakers of PA employ different strategies to avoid pronouncing words with such syllables. The word maarr,

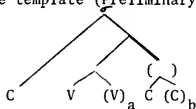
for instance, is realized as maa.rir⁶ by changing it into a pattern that exists in the dialect, and, for many speakers, the word saamm 'poisonous' is realized as bi.simm 'it poisons' by altering the grammatical category. Monosyllabic loan words from foreign languages having the syllable structure CVVCC are dealt with in a different fashion. The English words bank, chance, and Ford, for instance, which are heard as having the long vowel /aa/ in the first two words and /oo/ in the third, are realized in PA, as well as in other Arabic dialects, as /bank/, /ʃanS/, and /ford/, respectively, with short vowels. The nucleus in all these words is reduced to a short one to maintain the constraint mentioned above which prohibits both the nucleus and the coda from branching in the same syllable at the phonetic level.

The different strategies applied to loan words from Classical Arabic, on the one hand, and from foreign languages, on the other, can be explained in this way: many foreign words which are borrowed into Arabic are still not completely nativized. They continue to remain in the same category they have in the original language. One can seldom find derived or related words with the same consonantal make-up in different categories. The English words above are all treated as nouns in Arabic, but, except for the word ʃanS, no related verbs, adjectives, or adverbs occur in Arabic. That is, when the vowels in such monosyllabic words are reduced, the derived structures are not confused with other categories and they continue to maintain the same category they have in the original language. In other words, no ambiguity would result from the nucleus reduction process. This is not the case in Classical Arabic words. If the nucleus is reduced in words such as maarr or saamm, which are categorized as active participles, the derived structures would be marr 'he passed by' and samm 'he, it poisoned', which are used as verbs in both Classical and Colloquial Arabic. So in order not to confuse the two categories, the pattern- or category-changing techniques are used to avoid syllables of the form CVVCC in the dialect phonetically.

Finally, the syllable structures in (3) can be viewed as expansions of an abstract syllable template underlying the syllable structure of Arabic. Before trying to formulate that template, it can be seen that the syllable structures in (3d) and (3e) can be considered as expanded versions of those in (3b) and (3c), respectively, where a consonant is added to fill a vacuous coda position in the first case, and to make it heavy in the second. By the same token, the syllable structures in (3b) and (3c) can be viewed as expanded versions of the simple syllable structure in (3a), where the nucleus is made long in the first case, and a consonant is added to fill a vacuous coda in the second. No attempt, however, is being made here to derive one syllable type from another. Rather, these remarks about the syllable structure in PA are intended to show the differences between the various syllable types in terms of their constituent structures, which are relevant to other issues such as the relationship between syllable-weight distinctions and stress assignment (for further details about this relationship in PA, see Abu-Salim (forthcoming)).

The syllable template underlying all the syllable structures in (3) can thus be formulated as in (7) below:

(7) PA syllable template (Preliminary version):¹⁰



condition: if $b \rightarrow \sim a$

The main function of the condition imposed on the template is to disallow syllables of the form CVVCC from being derived phonetically.¹¹ It says that if the coda is heavy, then the nucleus cannot be long. We have seen in the discussion above of the way loan words are realized in PA that it is the nucleus that is reduced, not the coda, in CVVCC monosyllabic words. So, it is the structure of the coda that determines whether the nucleus may branch or not.

The condition on the syllable template in (7) can be stated in a rather different way if we allow for syllables to be organized into moras according to some, possibly universal, principles whereby a light CV syllable counts as one mora, a heavy CVV or CVC as two moras, and a superheavy CVVC or CVCC as three moras. It can be reformulated in such a way so that the syllable rime can have no more than three moras, given that the mora is defined as being equivalent to a terminal node in the syllable tree. But this reformulation, however, will not capture the conclusion arrived at in the preceding paragraph, it is the coda which determines the length of the nucleus; it will allow for the choice of reducing either the nucleus or the coda in CVVCC syllables, which is not the case since it is always the nucleus that is reduced.

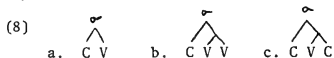
However, the syllable template in (7) does not specify any phonotactic constraints in the sense of Fudge (1969) or Kiparsky (1979) to account for the distribution of segments within syllables, particularly the distribution of consonants in terms of their sonority in the onset and coda positions. It is intended mainly to specify all the possible syllable types of the language in terms of their structures, and to serve as a well-formedness condition on the syllable structure of phonological representations as will be seen in section 3 below.

2. Basic vs. Derived Syllables

One important question which any theory of syllable and syllabification must address is the point in the derivation at which the syllable template in (7) is defined. That is, at what level of description, phonological or phonetic, will segments be syllabified according to the template in (7)? As will be seen, various phonological rules refer to the phonological structure in one way or another in PA. This implies that underlying strings have already been divided into syllables prior to the application of the phonological rules proper. Therefore, I would assume, following McCarthy (1979a) and Feinstein (1979) among others, that syllable structure is assigned on the underlying phonological representation, with a subsequent application of a resyllabification rule after each stage in the derivation, particularly after rules such as syncope or epenthesis that alter the segmental make-up of phonological strings.¹² This rule of resyllabification is needed in the grammar so as to account for the lack of one-to-one correspondence, in some cases, between underlying and surface syllables, and to

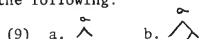
ensure that the segmental string is well-syllabified at any point in the derivation. The form and manner of application of these rules, however, will be discussed in detail in the next section.

Given the assumption in the preceding paragraph that segments are syllabified in the underlying representation, the following question arises: Are all the syllable types in (1) possible in the underlying representation? and, if so, how are they going to be represented in terms of their internal structures? Al-Ani & May (1973) and McCarthy (1979a) point out that the first three syllable types in (1), i.e., CV, CVV, and CVC, are unmarked in terms of their distribution in Classical Arabic words because they occur more often, in terms of frequency, than the last two types. Thus, they are considered to be the basic syllable inventory of Classical Arabic, and their internal structures are consequently represented as in (8) below given the assumptions made earlier about syllable structure:



The syllable types in (8b) and (8c) have basically the same structure: a simple nonbranching onset and a branching rime. Although the rimes in both cases have the same branching character, they differ in terms of their immediate constituency. In (8b) the rime consists of a branching nucleus, dominating a long vowel, and no coda, whereas in (8c) the rime consists of a short nucleus and a simple nonbranching coda. But these differences in the immediate constituency of these structures do not result in differences in their behavior with respect to phonological rules such as stress.

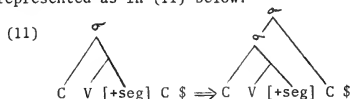
Both syllables are assigned stress in a parallel way when they occur in similar positions. To maintain the parallel between these two syllable types, McCarthy proposes that the syllable structure rubrics of Arabic are the following:



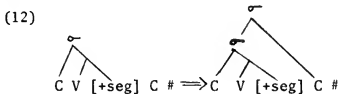
The last two syllable types, i.e., CVVC and CVCC, on the other hand, occur primarily, as reported by Al-Ani & May (1973) and McCarthy (1979a,b), in phrase-final position or before a pause in Classical Arabic due to the optional loss of inflectional endings in those positions, as shown by the examples in (10):¹⁵

- (10) a. ki.taab (cf. ki.taa.bun) 'book'
 b. dars (cf. dar.sun) 'lesson'

According to the syllable rubrics in (9), CVVC and CVCC syllables cannot be exhaustively parsed into acceptable syllables, given that each segment must belong to at least one syllable in underlying representations. Hence, McCarthy proposes a rule by which the final consonant in these syllables is Chomsky-adjoined to the preceding syllable. This rule can be represented as in (11) below:



A similar treatment is given to the syllable structure of various Arabic dialects (McCarthy 1979a,b, 1980, Broselow 1979, Kenstowicz and Abdul-Karim 1980, Selkirk 1981, among others). The CVVC and CVCC, or the superheavy syllables as they have been referred to, have been reported to occur in many Arabic dialects, such as Cairene (CA) and Damascene (DA), but with one difference: they are restricted in distribution, according to the studies cited above, to word-final position. So McCarthy proposes basically the same rule in (11) to account for the syllabification of these syllables in CA and DA, with a slight modification: the phrase boundary in (11) is replaced by a word boundary, as shown by the rule in (12):



Several arguments can be presented to cast doubt on the validity of the claim that rule (12) is to be part of the syllabification processes in Levantine Arabic, particularly in PA and DA. First, the superheavy syllables under consideration are not exclusively restricted to word-final position in both PA and DA; they occur in other positions as well, as is evidenced by the examples in (13-14) below where the nonfinal superheavy syllables are underlined:¹⁴

(13) PA

- | | |
|--------------------------|----------------|
| a. <u>burd</u> .ʔaan | 'oranges' |
| b. ʔuxt.hum | 'their sister' |
| c. <u>baal</u> .to | 'coat' |
| d. ʃub. <u>baak</u> .hum | 'their window' |
| e. <u>komb</u> .yuu.tar | 'computer' |
| f. <u>mift</u> .xir | 'proud' |

(14) DA

- | | |
|-------------------------|------------------------|
| a. ʔ <u>ramf</u> .le | 'a flower' |
| b. ʔ <u>and</u> .kon | 'you have' |
| c. ʔ <u>ing</u> .lii.zi | 'English' |
| d. <u>mist</u> .wiy.ye | 'well-cooked (f.)' |
| e. ba. <u>naat</u> .kun | 'your (pl.) daughters' |
| f. <u>miʃk</u> .le | 'problem' |

Given the syllable rubrics in (9) and the adjunction rule in (12), the nonfinal superheavy syllables in (13-14) cannot be properly syllabified. The rule in (12) could be revised slightly to account for the syllabification of nonfinal superheavy syllables by deleting the word boundary from the conditioning environment. Although this revision would provide for superheavy syllables in any position to be syllabified, it would, however, raise a question as to the motivation behind permitting syllable structures

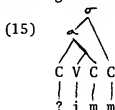
of the form to be part of the syllable structure of any language while, at the same time, disallowing superheavy syllables to be represented as in

(3d,e) above, i.e., to have the structure . As long as there is no universal constraint or prohibition against the syllable structures in (3d,e), I would consider them to be the correct representation for the internal structures of superheavy syllables in Arabic.

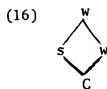
Second, final as well as nonfinal geminate consonant clusters are more likely to be dominated by the same node or two sister nodes rather than by two separate, but non-sister, nodes on the syllable structure level. Several studies (e.g., Kenstowicz & Pyle 1973 and Guerssel 1977) have shown that geminate consonant clusters not separated by any boundary do not undergo some phonological rules such as epenthesis that usually affect non-geminate consonant clusters.

This difference in behavior will be accounted for if one allows geminate clusters to be treated, and thus, represented differently than non-geminate clusters.

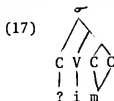
Under McCarthy's analysis, where length is indicated by gemination, words like ?imm 'mother' would have the syllable structure in (15), where the final geminate cluster is dominated by two separate non-sister nodes:¹⁵



Recent studies have shown that other representations would be preferred to the one in (15) as a possible representation of syllables with long consonants. Leben (1980), for instance, points out that long consonants in languages such as Hausa or Biblical Hebrew are best analyzed as single consonants occupying two non-nuclear positions at the metrical level, rather than treating them as consonants with the feature [+long] or as sequences of identical segments. This treatment of long consonants is supported by their behavior with respect to some phonological rules in both languages, where they group with single consonants in one case and with consonant clusters in another (for further details, see Leben (1980)). Ingria (1980) takes a similar position for indicating length, which he calls the "multiple attachment analysis". According to this analysis, long consonants are viewed as single consonants filling two non-nuclear positions in a syllable tree. They can occur in onset and coda positions in various languages, and when they do they are represented as in (16):



Accordingly, words like ?imm in Arabic would have the syllabic representation in (17) below, where node labeling is not indicated because it is not relevant for the present discussion:

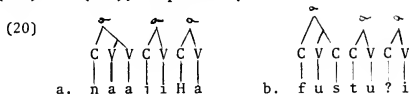


It is argued in Abu-Salim (forthcoming) that an analysis along the lines of Leben and Ingria is preferred for indicating length and would better describe the behavior of long consonants with respect to certain phonological rules.

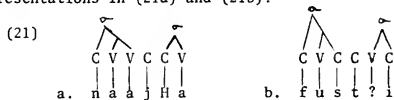
Third, it has to be noted that some phonological rules in PA create superheavy syllables in nonfinal positions at some points in the derivation. One of these rules is syncope which deletes unstressed high vowels in non-final open syllables, as shown by the examples in (18-19):

- (18) a. náa.jiH 'successful (m.sg.)'
 b. náaj.Ha 'successful (f.sg.)'
 (</naa.ji.Ha/)
- (19) a. fus.tu? 'peanut'
 b. fust.?i 'peanut-colored'
 (</fus.tu.?i)

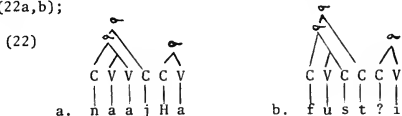
Given that the (a) examples are the underlying stems for the (b) examples in (18-19), the latter are then derived after the application of the syncope rule mentioned above. The various stages in the derivation of (18b) and (19b) are illustrated below. The first stage would be the assignment of syllable structure to their underlying representations shown in (20a) and (20b), respectively:



These structures (after metrical structure assignment and associated labeling) would now be subject to the syncope rule. I assume that if any vowel is deleted at any stage in the derivation, the syllable node dominating that vowel is also deleted by a convention. This would yield the representations in (21a) and (21b):



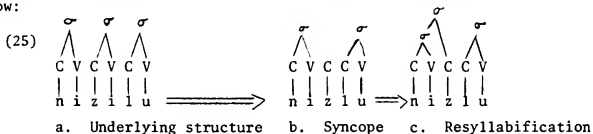
In each case, a consonant devoid of any syllable affiliation is left stranded. At this point, resyllabification is invoked so as to provide for that consonant to be syllabified with either of the neighboring syllables. This is based on the assumption that at any stage of the derivation phonological strings should be properly syllabified. Apparently, the stranded consonants in (21) cannot join the following syllables since that would create medial heavy onsets in violation of the syllable template in (7) and the constraint placed on the structure of the syllable onset. So the only other alternative is to adjoin them to the preceding syllable, which can be achieved by at least two different methods of adjunction. The first one is to Chomsky-adjoin the stranded consonant to the preceding syllable by a rule similar to the adjunction rule in (12), yielding the configurations in (22a,b);



If this method of adjunction is the correct one for resyllabifying stranded consonants, then additional syllable types may arise throughout the derivation of some strings. To illustrate this point, consider the examples in (23-24) below:

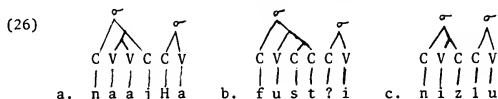
- (23) a. nɪ̌.zil 'he went down' (24) a. ʃǐ.rib 'he drank'
 b. nɪ̌z.lu 'they went down' b. ʃǐr.bu 'they drank'
 (</ni.zi.lu/) (</ʃi.ri.bu/)

The (a) examples in (23-24) are generally taken to be the underlying stems for the (b) examples (cf. Brame 1973, 1974). The latter examples are then derived after the syncope rule mentioned above has been applied. The relevant stages in the derivation of (23b), for instance, are sketched below:



This derivation would raise some questions as to the phonetic status and interpretation of derived syllables of the form $\overset{\sigma}{CVC}$ and how different they are, phonetically, from syllables of the form $\overset{\sigma}{CVC}$.

The other resyllabification method is to sister-adjoin the stranded consonant to the preceding node, i.e., to the coda or the nucleus of the preceding syllable. This would yield the representations in (26a,b,c) for the structures in (21a,b) and (25b), respectively:

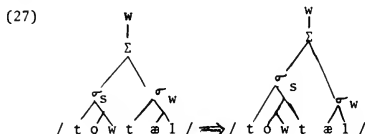


In (26a,c), the adjoined consonant fills an empty coda position that is available in terms of the template (7) in the preceding syllable, whereas in (26b) it makes the coda heavy. So, one can say that once the syllable structure is assigned, each syllable node (σ) will dominate a template like the one in (7) with all positions structurally present even if some of the optional ones are empty. Resyllabification would then be viewed as a process by which a stranded consonant is allowed to fill an empty coda position, if there is any, in a preceding syllable.

This method of resyllabification should be more highly valued than the preceding one since it creates syllabic configurations which conform to the syllable template of the language. The fact that the stranded consonant in the examples above is not adjoined to the following syllable is another indication of the conformity to the syllable template principle.

Evidence for this method of adjunction can be gathered from similar adjunction rules in various languages. Selkirk (1980), for instance,

argues that the various prosodic categories, syllable, foot, word, ... etc., must be recognized and identified in the hierarchical representation of words and phrases since many phonological processes refer to these categories and appeal to information provided by their internal structures. According to her, the "stress foot (Σ)" is the domain of resyllabification in English by which the onset consonant of a weak syllable in the foot is moved to the coda position of the preceding syllable, as shown by the derivation of words like 'total' in (27) below (Selkirk 1980: 577):

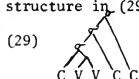


Consequently, I would assume that resyllabification in Arabic is achieved by sister-adjointing a stranded consonant to the final node of the preceding syllable, or, in other words, by filling an empty coda position in the preceding syllable. It follows that even if superheavy syllables are not basic in Arabic the rule in (12) is not the appropriate way of adjoining consonants to preceding syllables.

Fourth, it has been mentioned earlier that CVCC syllables are phonetically possible in Classical Arabic and that they can be generated in underlying structures in PA. Such heavy syllables will not be syllabified properly under McCarthy's analysis since the last consonant will be left devoid of any syllable affiliation, as illustrated in (28):



The only way, I think, for the last consonant in such cases to be syllabified is to reapply rule (11) to its output in (28b), thus, yielding the structure in (29):

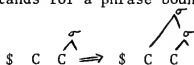


As can be seen in (29), McCarthy's analysis, if extended to account for the syllabification of CVCC syllables, would result in syllable structures with three syllable nodes in the same syllable. It would be hard, I believe, to give a phonetic interpretation to such syllable structures, and, consequently, to favor them over syllable structure of the form CVCC where only one syllable node is present.

The last point that can be presented as a counterevidence to the representation of superheavy syllables in (12) is derived from the structure

of the syllable onset in PA, as well as in other Arabic dialects. As mentioned in section 1, heavy onsets are restricted exclusively to phrase-initial position. So, given McCarthy's analysis of superheavy syllables which is based on distributional, rather than phonetic, factors,¹⁷ heavy onsets are prime candidates to be considered as nonbasic in Arabic and to be syllabified by a rule similar to the one in (11) because they have occurrence restrictions similar to those imposed on the rimes of superheavy syllables in Classical Arabic. This rule could be formulated as in (30), where \$ stands for a phrase boundary:

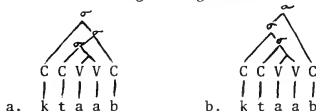
(30)



That is, the first consonant in a phrase-initial consonant cluster is Chomsky-adjoined to the following syllable. The \$ is necessary to be part of the rule so as to prevent non-initial syllables from acquiring additional consonants.

The syllabification process in Arabic would be rather complex if we allow both rules (12) and (30) to part of the grammar. They would give rise to highly doubtful syllable structures, especially if they both apply to the same utterance. Words like ktaab 'book' would then be represented by either of the following configurations:

(31)



Choice among (31a) and (31b) would depend on the ordering restrictions defined among the adjunction rules in (12) and (30). At any rate, such syllables are hard to interpret. In McCarthy (1979a,b), superheavy syllables are treated as single syllables having two rimes, the first of which is branching and the second nonbranching. If that is the case, how would the syllable structures in (31) be interpreted?

Finally, it has to be noted that syllable-initial consonant clusters and heavy codas cannot be treated alike by any theory of syllabification in Arabic. Syllable-initial consonant clusters, as mentioned above, are more restricted in distribution than heavy codas. Moreover, syllables with heavy codas are sensitive, in most cases, to sonority restrictions while syllables with initial consonant clusters are not (cf. ?a.kil (</?akl/) 'food' vs. lka.lam 'the pencil'). I would conclude, therefore, that superheavy syllables are basic in Arabic, and that they are to be syllabified in the same way other syllable types are. Syllable-initial consonant clusters, on the other hand, are not basic for the reasons mentioned above. The first member of initial consonant clusters would be syllabified with the following syllable by rule (30) which will be considered as part of the syllabification process in Arabic. Word-initial consonant clusters in other than phrase-initial position would not undergo rule (30), since in that case the initial consonant would be syllabified with the preceding syllable.

3. Syllable Structure Assignment and Syllabification Rules

It has been claimed in section 2 that syllable structure is defined at the underlying level prior to the application of phonological rules. Syllable structure at this level does not necessarily correspond to the derived structure at the phonetic level due to the application of some phonological rules such as syncope or epenthesis which alter the segmental make-up of some phonological strings. A resyllabification rule is therefore needed in the grammar to readjust the syllable structure at any intermediate stage in the derivation, so that the derived structure is properly syllabified according to the syllabification rules of any particular language.

Several methods have been proposed to define the notion 'possible syllable' of a natural language, and various procedures or conventions have been established for dividing utterances into syllables. Two of these conventions seem to be of interest to the phonological theory, and are often referred to in various phonological studies. The first is the proposal made in Hooper (1972) by which syllable boundaries are inserted between certain sequences of segments by a universal rule, and the second is the autosegmental approach of Kahn (1976), by which segments in the phonological string are associated with syllable nodes on a separate tier by a set of association rules.¹⁸

Both schemes of syllabification mentioned above are aimed at giving a formal definition of what a possible syllable of a natural language is. They predict, for instance, that in VCV sequences the intervocalic consonant is syllabified with the following, rather than the preceding, syllable. This tendency for open syllabicity, claimed to be universal, recognizes the simple CV, but not VC, syllable to be the least marked in the human languages (cf. Kaye and Lowenstamm 1979 and Cairns and Feinstein 1982).

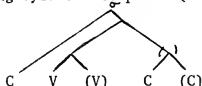
However, both schemes are basically concerned with locating syllable boundaries in segmental strings. They do not provide any account for the question of the internal structure of the syllable, probably because the phenomena discussed in those studies do not require reference to this structure. It is possible to come up with a revised version of any of the schemes above to suit the case of syllabification in Arabic, but this will be done at the expense of ignoring any internal structure for the syllable. As mentioned earlier, there is evidence to suggest that an intermediate hierarchical structure intervening between the CV-tier and syllable nodes must be recognized as part of any theory of the syllable and syllabification in Arabic due to the availability of some rules that refer to this structure, as will be discussed below.

My alternative proposal for syllabification in Arabic relies in part on the recent development in the theory of syllable structure as presented in McCarthy (1979a,b), Selkirk (1979b), Kiparsky (1979, 1980), Kaye and Lowenstamm (1979), and Ingria (1980), among others, where syllables are represented in terms of binary branching metrical trees, the nodes of which are labeled *s* or *w* according to their relative sonority, as outlined in section 2. Syllable structure assignment rules, in the analysis presented below, will involve not only rules that will gather segments into syllables and assign internal structures to the created syllables, but will also involve other rules, some of which are similar in effect to other phonological rules in PA, which apply at the time syllabification is performed.

It has to be pointed out, first of all, that all the syllable types of PA at the phonological representation level are defined in terms of the underlying syllable template of the language. The phonetic syllable structure is derived after the application of a) the syllabification rules which apply at the time syllable structure assignment rules are performed, and b) the resyllabification rules which apply after the application of some phonological rules that alter the segmental make-up of the underlying string. I will have occasion to discuss all of these rules in detail in this section.

The dichotomy between the underlying syllable structure and the phonetic one is not arbitrary. We will see below that while CVVCC syllables are not permitted phonetically they are possible in underlying structures. Thus, I assume that this syllable type is part of the underlying syllable inventory in PA. The underlying syllable template of PA in (7) will, accordingly, be revised so that the condition imposed on it is no longer there,¹⁹ as shown in (32) below:

(32) PA underlying syllable template (a revised version):



Before we move to the next section and show how the underlying syllable structure is defined in terms of the syllable template in (32), it is better to first show briefly how segments are to be represented in underlying representations prior to the syllabification process.

Underlying strings may contain short as well as long segments. It seems uncontroversial to define short segments, both consonants and vowels, as being associated with single nodes in the syllable tree. This is illustrated by the following initial representations for short vowels, short consonants, and nongeminate consonant clusters:

- (33) a. a short vowel b. a short consonant c. nongeminate consonant cluster
- ```

 | | |
 V C C C

```

Long segments, on the other hand, would have a different representation. It is assumed, following Leben (1980) and Ingria (1980), that length is interpreted as an association of one segment in the segmental string with two nodes in the syllable tree, as shown in (34a,b) below:

- (34) a. a long vowel                      b. a long consonant<sup>20</sup>
- ```

      / \                               / \
     V   V                             C   C
  
```

In other words, a long vowel will be associated with two V-nodes and a long consonant with two C-nodes in the CV-tier. This way of representing length should be more highly valued than representing length by gemination for it guarantees that non-identical vowels will not occupy the nucleus position in any syllable and further provides for the immunity of long consonants against rules such as epenthesis, which breaks up non-geminate consonant clusters under some conditions.

3.1. Syllable Structure Assignment Rules

As mentioned in the preceding section, the underlying syllable structure is defined basically in terms of the underlying syllable template of the language. So, given the syllable template in (32) and the representation of length assumed above, syllable structure assignment will involve only one rule, and that is the imposition of the syllable template on the segmental string. This rule will apply iteratively until all the input string is completely, and, in some cases, properly syllabified. To illustrate how this rule applies, consider simple strings such as maktab 'office', ?imhuhum 'their mother', and ra?iis 'president', where the underlying phonological structure is identical to the phonetic structure. These words will have the following initial representations:

- (35)
- | | | |
|----------------|----------------|--------------|
| C V C C V C | C V CC C V C | C V C VV C |
| | | |
| a. m a k t a b | b. ? i m h u m | c. r a ? i s |

As mentioned in section 1, the syllable onset may consist of no more than one consonant. To guarantee that each syllable will have an onset it is important to start the syllabification process from right to left. To make this point clear, consider an input string of the form CVCVC. If we start syllabification from left to right, we will end up with a syllable structure of the form *CVC.VC, which is not acceptable, whereas if we start from right to left, the correct syllable structure CV.CVC will be derived (for further details about directionality in syllable structure assignment, see Kaye and Lowenstamm (1979)).

Given this directionality constraint on syllable structure assignment, the first iteration of the rule on the input strings in (35) will yield the structures in (36):

- (36)
- | | | |
|----------------|----------------|--------------|
| | | |
| | | |
| a. m a k t a b | b. ? i m h u m | c. r a ? i s |

In each case, the rightmost syllable is defined. However, syllable structure assignment will continue until all the underlying segments in the segmental string are syllabified. Thus, the second iteration of the syllable structure assignment rule will define the second rightmost syllable in the structures in (36), yielding those in (37):

- (37)
- | | | |
|----------------|----------------|--------------|
| | | |
| | | |
| a. m a k t a b | b. ? i m h u m | c. r a ? i s |

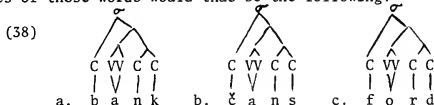
All the segments in the examples in (37) are now syllabified, which means that the syllable structure assignment process is accomplished. No other syllabification rules are needed in these simple examples. The resulting structures in (37) will now be subject to metrical structure assignment above the syllable level, which is irrelevant to the subject matter of this paper.

3.2 Syllabification Rules

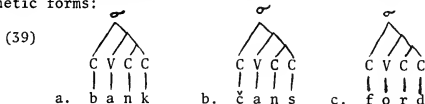
The examples considered in section 3.1. are very simple in that they do not require any additional rules to readjust the resulting syllable structure to make it conform to the underlying syllable template of the language. There are cases, however, where readjustment rules, which I prefer to call syllabification rules, are needed whenever the underlying segmental string cannot be completely syllabified according to the syllable template in (32). The rules which will be discussed below are: Nucleus-Reduction, Vowel-Insertion, and Phrase-Initial Consonant Adjunction. These rules, I assume, apply whenever their environment is met at the time syllable structure is assigned.

3.2.1. Nucleus Reduction

The function of this rule is to guarantee that syllables of the form CVVCC are not realized phonetically. This function is achieved by reducing the nucleus of CVVCC syllables to nonbranching whenever such syllables arise in underlying syllable structures. We have seen in section 2 that loan words such as *bank*, *chance*, and *Ford* are realized phonetically with short nuclei in PA. This reduction phenomenon can be viewed as the result of the Nucleus-Reduction rule under consideration. The underlying syllable structures of those words would thus be the following:



These structures would give the opportunity to the Nucleus-Reduction rule to apply, yielding the structures in (39) which are identical to the phonetic forms:



It has to be noted in this regard that the Nucleus-Reduction rule is not restricted to loan words. It applies as well to native forms that meet its structural description. Consider, first, the following examples:

- (40) a. jáab 'he brought'
 b. jáab-ha 'he brought her'
- (41) a. jáab-at 'she brought'
 b. jab-át-hum 'she brought them'
 (€/jaab-at-hum)

The vowel-length alternation observed in (41a,b) is due to a vowel-shortening rule in PA that, roughly, shortens long vowels when they occur in unstressed open syllables (for further details about this rule, see Abu-Salim (forthcoming)). But there are cases where long vowels are systematically shortened even when they occur in stressed syllables, as in the following examples:

- (42) a. ráHlak (</raaH-l-ak/) 'he went for/to you (m.sg.)'
 b. jábli (</jaab-l-i/) 'he brought (sth.) for/to me'
 c. (ma) šáfiš (</šaaf-š/) 'he didn't see'
 d. (ma) ráHiš (</raaH-š/) 'he didn't go'

These examples cannot be accounted for by the vowel-shortening rule mentioned above for two reasons: first, the long vowels are assigned primary stress and, second, they are in closed syllables. Any attempt to modify the vowel-shortening rule to enable it to account for such cases would result in a number of anomalies. First, we have seen that stressed vowels do not undergo the vowel-shortening rule (40a,b, 41a), and second, unstressed vowels in closed syllables escape the rule too, as in the following examples:

- (43) a. (ma) šaafníš / * šafníš 'he didn't see me'
 b. (ma) baasháaš / * basháaš 'he didn't kiss her'

The analysis proposed in this paper avoids these anomalies. The examples in (42) will be derived in a way similar to the derivation of loan words in (38-39). We need only to further assume that syllable structure assignment is cyclic (McCarthy 1981). Segments will initially be syllabified on the innermost cycle according to the syllabification rules of the language. Then, if necessary, segments are resyllabified to conform to the syllable structure constraints of the language when outer cycles are considered for syllabification. This process is repeated until all the segments of the superordinate cycle are properly syllabified.

Given these assumptions, the derivation of (42a,c), for instance, would proceed as follows given that their internal constituent structures are bracketed as indicated by the (-) signs in their corresponding underlying structures. First, syllable structure is assigned on the innermost cycle according to the template in (32), yielding the representations in (44):

- (44)
- a. [[[r a H l] a k]

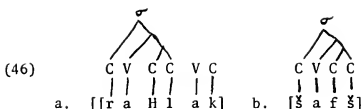
b. [[š a f] š]

When the second cycle is considered for syllabification, the dative suffix /l/ and the negative suffix /š/ are syllabified with the preceding syllables, thus yielding the syllable structures in (45):

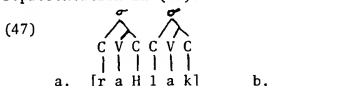
- (45)
- a. [r a H l] a k]

b. [š a f] š]

The derived syllables in (45a,b) are of the form CVVCC. This is exactly the syllable type which invokes the Nucleus-Reduction rule to apply. The rule, therefore, applies at this point in the derivation, yielding the structures in (46a,b), where the nucleus in each case is reduced to nonbranching:



Finally, syllabification continues on the outer cycles until all the segments are properly syllabified. In (46b) this job has been achieved. But in (46a) the object suffix /ak/ is still to be syllabified. Reapplication of the syllable-structure assignment rules yields the representation in (47):

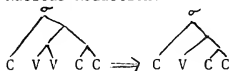


The correct phonetic forms ráHlak and (ma) ʃáfiʒ are then derived after syllables are organized into higher metrical units, and after the application of phonological rules, particularly vowel-epenthesis to (46b.)²¹

This analysis, I believe, provides a reasonable account for the phenomenon under consideration, i.e., shortening of vowels carrying primary stress. If this phenomenon were to be accounted for by the vowel-shortening rule that shortens vowels in unstressed open syllables, the rule would be more complicated. Thus, I make the distinction between the Nucleus-Reduction rule under consideration and the Vowel-Shortening rule mentioned above. The latter rule, as mentioned earlier, affects only vowels in unstressed open syllables, whereas the former is not sensitive to this property since it affects syllables that would be viewed as the most prominent after the assignment of metrical structures above the syllable level. This is why the two rules are placed in different positions in the grammar: the Nucleus-Reduction rule applies at the time syllable structure is assigned, and is part of the syllabification rules, whereas the Vowel-Shortening rule applies after the metrical structure at the word level is assigned and is part of the phonological rules proper.

Given this account of the nucleus-reduction phenomenon, the rule could be formulated as in (48):

(48) Nucleus-Reduction:



3.2.2. Vowel-Insertion

The function of this rule is to create new syllables so as to provide for consonants that cannot be properly syllabified by the syllable-structure assignment mechanism to be syllabified. This process can be viewed as a consequence of the assumption made earlier that all segments in underlying strings must be properly syllabified according to the template in (32). Cases with stranded, or unsyllabified, consonants most commonly arise when various suffixes are concatenated to verbal stems, as in katabtíha 'I wrote to/for her' (</katab-t-l-ha/). The various stages in the syllabification of this example would yield the structure in (49):



As it is clear in (49), the dative suffix /l/ is left unsyllabified because it cannot be syllabified with any of the neighboring syllables: the two positions in the coda of the preceding syllable are already occupied, and the onset of the following syllable cannot contain more than one consonant. A provision must, therefore, be made to allow the stranded consonant to be syllabified. The surface form katabtilha indicates that a vowel has been inserted to the left of that consonant. This is basically what the Vowel-Insertion rule does at this point. It inserts the vowel /i/ before any stranded consonant at any point in the syllabification process when such a situation arises. Application of the Vowel-Insertion rule to the structure in (49) would yield that in (50):



This structure is still not well-formed. The newly created syllable is vowel-initial which cannot be allowed according to the syllable template in (32). This situation is amended by the resyllabification rule which is assumed to be part of the grammar of Arabic.

Resyllabification would modify the structure in (50) in such a way so that the resulting structure conforms to the template in (32). It will basically provide an onset for the newly created syllable by resyllabifying the last member of the coda of the antepenultimate syllable with the following syllable. Application of this rule would yield the structure in (51):



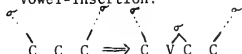
No additional syllabification rules are needed since the structure in (51) is now well-syllabified.

Evidence for the Vowel-Insertion rule as part of the syllabification rules is not difficult to find. One might argue that the vowel /i/ is inserted by the epenthesis rule which is needed anyway elsewhere in the grammar. Proponents of this analysis would have to explain the placement of primary stress on the inserted vowel in the phonetic form katabtílha since epenthetic vowels do not receive stress due to their insertion after stress has been applied (Brame 1973). One might argue instead that the vowel /i/ is underlying in katabtílha and view it as part of the dative suffix. But this analysis would fail to explain the absence of primary stress on the same vowel in other examples as in katábilha.

The present analysis provides a natural explanation for both cases above. The inserted vowel in *katabtīlha* receives primary stress because, as illustrated above, it is inserted prior to the assignment of metrical structures above the syllable level. Thus, when the word-level tree is erected, the inserted vowel will be present for rules that weigh syllables against each other for purposes of stress interpretation. According to the stress-assignment mechanism of PA,²² the syllable that contains the inserted vowel in *katabtīlha* will be the strongest element in the strongest foot, thus, it is viewed as the most prominent, whereas in *katābilha*, the vowel /i/ is inserted later in the derivation by the epenthesis rule after the metrical structure at the word level has been erected and, consequently, after prominence relations among syllables have been established. Thus, it escapes being assigned any prominence relation at the time such a relation is assigned. This is why we end up with the opaque stress on the surface.

Given this account of vowel-insertion, the rule could be formulated as in (52):

(52) Vowel-Insertion:

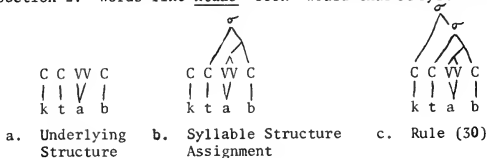


Again, this rule is placed among the syllabification rules that apply at the time syllable structure is assigned, and is viewed as independent of the vowel-epenthesis rule which applies at a later point in the derivation and which is dealt with as part of the phonological rules proper.

3.2.3. Phrase-Initial Consonant Adjunction

It was pointed out in section 1 that syllable-initial consonant clusters are possible in PA only in phrase-initial position. Due to this restriction on their distribution, no attempt has been made to provide for their syllabification by the syllable template in (32). If this were done, syllable structure assignment would be more complicated since it would allow for heavy onsets in other positions to be derived, which would be followed by a rule or rules to modify the resulting structure by taking the lefthand member of the heavy onset and resyllabify it with the preceding syllable. Consequently, I assume that the first member of a phrase-initial consonant cluster is adjoined to the initial syllable in the utterance by rule (30) given in section 2. Words like *ktaab* 'book' would thus be syllabified as in (53):

(53)



This analysis can be supported by the fact that such initial consonant clusters are not broken up by epenthesis, whereas heavy clusters in the coda position are. In other words, heavy codas obey, in most cases, some sonority restrictions on the distribution of consonants in the two coda

positions whereas phrase-initial consonant clusters do not, which can be viewed as resulting from the difference between the structure of the coda and that of the phrase-initial consonant cluster.

4. Resyllabification

It was pointed out earlier that some phonological rules affect the underlying syllable structure in such a way that a resyllabification rule is needed in the grammar to ensure that the segmental string is properly syllabified at any point in the derivation. Two of these rules are syncope and epenthesis, which delete and add segments, respectively, to underlying structures. In this section, I will examine briefly how these rules affect the underlying structure and how the resyllabification rule amends it.

The general syncope rule of PA deletes short high vowels in unstressed nonfinal open syllables, whereas epenthesis has a complementary effect of inserting short high vowels into consonant clusters under some conditions,²³ as illustrated by the following examples:

- (54) a. šírib 'he drank'
 b. šírb-at 'she drank'
 (</širib-at/)

- (55) a. ?ák1-i 'my food'
 b. ?ak11-na 'our food'
 (</?ak1-na/)

In (54b) the second stem vowel is deleted by syncope whereas in (55b) the second vowel is inserted by epenthesis. The underlying syllable structures for (54b) and (55b) are those in (56a,b), respectively:

- (56)
- | | |
|----------------|----------------|
| | |
| a. š i r b a t | b. ? a k 1 n a |

When syncope and epenthesis apply to the structures in (56a,b), they yield the corresponding structures in (57a,b), where a syllable node is deleted in the first case, and another is added in the second. In this regard, I assume that once a vowel is deleted from the segmental string, the corresponding syllable node is consequently pruned off the syllable tree. By the same token, once a vowel is inserted into a segmental string, a syllable node is created dominating that vowel and any neighboring unsyllabified consonant.

- (57)
- | | |
|----------------|------------------|
| | |
| a. š i r b a t | b. ? a k i l n a |

Such situations will invoke the resyllabification rule to apply so as to allow for the resulting unsyllabified segments to be associated properly with syllable nodes. In (57a) the stranded consonant is resyllabified with the preceding syllable in such a way that it will come to occupy the coda position of that syllable. In (57b), on the other hand, the syllable structure of the whole utterance has to be reorganized so that the coda of the initial syllable is resyllabified with the newly-created syllable as its onset. The resulting structures after the application of resyllabification would be the following:



The resyllabification process illustrated above can be viewed as a reapplication of the syllable-structure assignment rules. First, the initial syllable structure is erased whenever segments are deleted from or added to the segmental string. And, second, the syllable-structure assignment rule will reapply to give a new structure to the segmental string. This process of erasing and rebuilding syllable structures will be performed after the application of any phonological rule that affects the segmental make-up of the underlying string. (Cf. Cairns and Feinstein (1982) for a proposal to eliminate the need for resyllabification following the application of each phonological rule.)

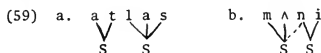
However, it is important to make the distinction between syllable structure assignment and resyllabification and to hold that distinction throughout the derivation. It was mentioned earlier that the underlying syllable structure defined by the syllable-structure assignment rules is the input to other metrical-structure assignment rules that build the word tree. It is at this point, i.e., building the metrical word-structure, that prominence relations among syllables are defined. Since some phonological rules are sensitive to the underlying syllable structure and to the strength relations established among syllables, it is important to preserve these strength relations throughout the derivation. If, for instance, the underlying syllable structure in (56b), and ultimately the word-structure, is erased after epenthesis, prominence relations among syllables would be reassigned in the structure in (58b), thus, yielding the incorrect phonetic form * ?akılna, whereas preservation of the original prominence relations yields the correct, although opaque, phonetic form ?ákılina.

In this analysis, then, syllable-structure along with word-structure assignment rules will define the syllables contained in any utterance in addition to the strength relations among those syllables, whereas resyllabification will ensure that the segmental string is well-syllabified at any stage in the derivation according to the syllable template in (32) provided that it does not alter the original strength relations. In fact, what resyllabification does is to associate stranded consonants, as in (57a), with the coda position of the preceding syllable, or providing an onset for a vowel-initial syllable, as in (57b), by resyllabifying the rightmost coda position of the preceding syllable with the following onsetless

syllable. In this regard, it can be assumed that once a syllable node is assigned it will dominate a structure similar to the syllable template in (32) with all positions structurally present although some may be empty. Resyllabification is viewed then as a reorganization rule by which some segments are reorganized in neighboring syllables.

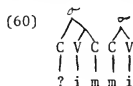
5. Ambisyllabicity

The syllabification scheme proposed by Kahn (1976) allows for consonants in some positions to be dominated by two syllable nodes, thus being "ambisyllabic", as shown by the syllabification of words like money where the syllable boundary between the two syllables contained in that word is not well-defined as it is in words like atlas:

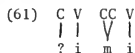


Association lines linking pairs of syllables, such as the dashed line in (59b), are introduced, according to Kahn, by one or more rules after the syllabification rules of the language have been applied. For further details about this phenomenon in English, see Kahn (1976).

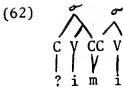
Ambisyllabicity is one of the least, if ever, discussed phenomena in Arabic. This is due partly to the way segments are generally represented in phonological representations, where long segments, consonants or vowels, are treated as sequences of two identical segments. This mode of representation would allow for words like ?immi 'my mother' to have the syllable structure in (60) with a well-defined syllable boundary between the two members of the geminate consonant cluster:



A careful phonetician, upon hearing the pronunciation of words like ?immi, would reject the representation in (60) to be the correct one for representing intervocalic geminate clusters and would favor, instead, a representation with no internal syllable boundary associated with such words, since it is hard to identify the point where one syllable ends and the other begins. Thus, I assume that such consonants are best analyzed as being long, and, be represented as in (34b) above. To show how ambisyllabicity is predictable given the syllabification scheme proposed in section 3 and the way long consonants are represented in underlying structures, consider the syllabification of words like ?immi which would have the initial representation in (61):

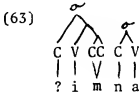


The syllable-structure assignment rules would unambiguously assign the following structure to the representation in (61):



In (62), the intervocalic long consonant is associated with two C-elements in the CV-tier and, consequently, with two branches in the syllable structure. It is interpreted as ambisyllabic since the two C-elements in the CV-tier are associated with two syllables in the syllable structure. No additional associations lines, the sense of Kahn (1976), are needed to link the two syllables since they are already linked. The long consonant serves as both the coda of the first syllable and the onset of the second.

It is not to be implied, however, that all long consonants in Arabic are ambisyllabic: only long intervocalic consonants are. Words like ?imn-na 'our mother' as opposed to ?im-na 'we lifted', for instance, will have the syllable structure in (63) according to the syllable-structure assignment rules of PA:



Here, the long consonant is syllabified with only the first syllable and serves as its coda. Any attempt to view it as ambisyllabic would result in an unacceptable structure that violates the syllable template in (32).

6. Conclusion

It has been argued in this paper that syllabification in PA not only involves rules to define syllable boundaries and assign structure to the syllables contained in the utterance, but also rules, some of which are similar in effect to other phonological rules in PA, that have to apply at the same time syllable structure is assigned. These rules have been placed among the syllabification rules for the simple reason that they, unlike phonological rules, are not sensitive to information provided by other phonological rules. So, for instance, the Nucleus-Reduction rule applied prior to assignment of prominence relations among syllables, whereas the Vowel-Shortening rule is sensitive to whether long vowels are stressed or not.

It is my belief that many of the generalizations stated in this paper for PA hold as well for other Arabic dialects. It is, however, beyond the scope of the present study to deal with the issues considered in this paper comparatively.

NOTES

*I would like to thank C.C. Cheng, C-W. Kim, M. Kenstowicz, and C. Kisseberth for their helpful comments on various earlier versions of this paper. The transcription system used here has the following characteristics: 9 and H stand for the voiced and voiceless pharyngeal fricatives, respectively, emphatic consonants are indicated by uppercase letters, and long segments are denoted by gemination.

¹Classical Arabic, on the other hand, has been reported to have this syllable type exemplified by words such as haamm 'important' or maarr 'passer-by'. It is pointed out by Al-Ani and May (1973:118) that this syllable type is the least frequent of all the syllable types of Arabic and that it is restricted in distribution to the final position in utterances or in words in their pause form.

²There is no total agreement among linguists as to the nature of the hierarchical structure of the syllable and the number of levels that may intervene between the segmental string and syllable nodes. Whereas the studies cited above display a certain amount of agreement that syllables have binary-branching tree structures with no limit on the number of levels intervening between segments and syllable nodes, Clements and Keyser (1981) propose an n-ary branching structure for the syllable, where the segmental tier and the syllable tier are separated by a third tier which they call "the CV-tier". In the present study, I assume the existence of the CV-tier mediating between the segmental tier and the syllable tier, and further assume, following McCarthy (1979a,b) and others, that the structure intervening between the CV-tier and the syllable tier is binary, rather than n-ary.

³Heavy onsets have been reported to occur in various Arabic dialects, as in Tunisian (Maamouri 1967) and Syrian Arabic (Cowell 1964), among others.

⁴When they occur in other positions, however, the first member of the cluster is syllabified with the preceding syllable, as in the following example:

lam.ma	ʃ.rib.na	'when we drank'
cf. lam.ma		'when'
	ʃ.rib.na	'we drank'

⁵Later in section 3, I will argue that CVVC syllables can be generated in underlying syllable structures. Their failure to have a phonetic realization will be viewed as resulting from the application of a syllabification rule that has the effect of reducing the nucleus of such syllables at the time syllabification takes place.

⁶/maarr/ cannot be interpreted as the underlying form for maarrir since there is a prohibition against breaking up geminate consonant clusters in PA. The /i/ in maarrir is underlying, as argued by Brame (1971:575).

⁷Of the derived words from ʃanS are ʃannaS 'to be lucky' and mʃanniS 'lucky'.

⁸This is not to be understood as a rejection of the idea that one syllable type may be considered as "derived" from another in the sense of stating an implicational relation between the existence of one syllable type and another. That is, if a language has a CVCC syllable type, then it will have CVC syllables. Similarly, if it has CVC syllables, then it will have CV syllables, etc. (cf. Kaye and Lowenstamm 1979 and Clements and Keyser 1981).

⁹As mentioned earlier, heavy onsets are not basic in PA due to their limited distribution. Thus, they are not represented in the syllable template in (7). Instead, the initial member of the consonant cluster will be joined to the following syllable by a syllabification rule which will be discussed in detail in section 3.

¹⁰Only long vowels may occupy the nucleus when the optional node in the template is present. Sequences of nonidentical vowels may not occupy that position, and they will be ruled out by a constraint on phonological representation prohibiting nonidentical vowels to be dominated by one syllable node.

¹¹As mentioned earlier, this syllable type can be generated in phonological structures through the concatenation of various morphemes to base forms. The condition on the template in (7) can thus be viewed as a syllabification rule that has the affect of reducing the nucleus in CVCC syllables at the time underlying strings are syllabified. This syllabification rule is different from the Vowel-Shortening rule of PA since their conditional environments are different, and they apply at different stages in the derivation as will be discussed later in section 3.

¹²Cf. Cairns and Feinstein (1982:194) for an opposite view about resyllabification where it is claimed that their proposal "obviates the need for resyllabification following the application of each phonological rule."

¹³Cf. haam.mun 'important' where a CVVC syllable occurs nonfinally when the inflectional ending -un, standing for the nominative case and nunation, is added to the word haamm.

¹⁴The Damascene Arabic examples are taken from Cowell (1964).

¹⁵Kenstowicz (personal communication) informed me that McCarthy's current position would give the following representation for words like ?imm:

C	V	CC
		√
?	i	m

¹⁶Metrical structures and labeling above the syllable level are ignored because they are not crucial to the present discussion. The information they provide, however, should be available before any phonological rule applies.

¹⁷ McCarthy (1979a:27) states that the "superheavy syllables of Arabic, although more complex than the other types, are, however, clearly single syllables by any measure of surface syllabification. Thus, they scan as single heavy syllables, not as two syllables, in the meter mutadaarik, where they occur most often."

¹⁸ For further details about these two schemes of syllabification, see Hooper (1972) and Kahn (1976).

¹⁹ The condition on the syllable template will be viewed later as a syllabification rule which will guarantee that CVVCC syllables are not realized phonetically in PA.

²⁰ The term "long consonant" is used here to refer to what has been usually referred to as a "geminate consonant cluster".

²¹ In Abu-Salim (forthcoming), I assume that syllable and higher metrical units apply simultaneously on each cycle. Thus, on the innermost cycle, syllables are grouped into feet and the latter into the word before we proceed to the other cycles, and so on.

²² For further details about a segmental treatment of stress in PA, see Brame (1973), and for a metrical analysis of stress in PA, see Kenstowicz (1981) and Abu-Salim (forthcoming).

²³ For further details about these two rules, see Brame (1973).

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A QUANTIFICATION OF CHINESE DIALECT AFFINITY

Chin-Chuan Cheng

Although there have been many studies on how Chinese dialects relate to each other on the basis of a handful of phonological changes within the framework of traditional historical linguistics, few have attempted to quantify the degrees of closeness. This paper presents a method of quantification of Chinese dialect affinity in terms of lexical items. The data consist of 905 words listed in the Hanyu Fangyan Cihui compiled by linguists in Peking. The corresponding forms in 18 dialects (Beijing, Ji'nan, Shenyang, Xi'an, Chengdu, Kunming, Hefei, Yangzhou, Suzhou, Wenzhou, Changsha, Nanchang, Meixian, Guangzhou, Yangjiang, Xiamen, Chaozhou and Fuzhou) from the book have been tabulated. These forms in relation to the dialects were dichotomized as either presence or absence. Then contingency tables of each pair of dialects were constructed, and Pearson's Moment Product in statistics was applied to them to obtain the cross-correlation among the dialects. The correlation coefficients are considered the degrees of closeness. The coefficients are utilized to subgroup the dialects. The derived subgrouping is compared with known facts in Chinese linguistics. Further applications of the method and the coefficients as indices of distance are discussed.

1. Dialect Distance

As early as 1935, Professor Wang Li grouped Chinese dialects into Mandarin, Wu, Min, Yue, and Kejia (Wang Li 1935). His grouping was mainly based on the existence of voiced obstruents; the presence or absence of syllable endings -m, -p, -t, -k; and the number of tones. Professor Li Fang-kuei's 1937 classification was also made on the basis of these phonological characteristics. Thanks to the successful work of Chinese linguists in the past, phonological details of speech in many localities are generally available. In Professor Yuan Jiahua's (1960) monumental work, Northern Dialects (including Northern Mandarin, Northwestern Mandarin, Southwestern Mandarin, and Xiajiang or Eastern Mandarin), Wu, Xiang, Gan, Kejia, Yue, Northern Min, and Southern Min are established and well documented.

Dialect grouping or subgrouping provides us with the information that some speech communities share or do not share certain linguistic features. We are thus able to differentiate the varieties in a systematic way. However, these distinct dialects are actually related. Indeed, the relatedness can be demonstrated by the sharing of various characteristics. Yet, the DEGREES of closeness among the dialects and among the

varieties within the dialects have not been well studied. For example, there are no readily available indices for determining whether Kejia as spoken in Meixian is closer to Gan than it is to Yue or whether Xi'an is closer to Ji'nan than to Beijing. One of the objectives of science is to express things in terms of verifiable measurements. It will be further progress in linguistics if we are able to precisely quantify dialect affinity. Indeed, Wang Yude (1960) was the first scholar to attempt to apply glottochronological methods to quantify closeness or remoteness of Chinese dialects. His work, however, is limited to five dialects and the validity of many assumptions in glottochronology is doubtful. In this paper, I will present another method to measure the distance of Chinese dialects on the basis of lexical items. Specifically, the statistician Karl Pearson's product-moment correlation coefficients are used to measure the degrees of association among the varieties of dialects as given in the Hanyu Fangyan Cihui (Beijing University 1964).

2. Lexical Correlation

Syntactic features, phonological characteristics, and lexical cognates are used by linguists as well as by speakers of a dialect who come into language contact with speakers of another dialect to determine dialect relationships. Let us examine how lexical items facilitate such a task. Take the words 'sun' and 'moon' as an example. According to Hanyu Fangyan Cihui these words exist in the following dialects as given in (1):²

(1)		sun		moon
Beijing	太阳	t'ai iag	月亮	ye liag
Ji'nan	太阳	t'ɛ iag	月亮	ye liag
Suzhou	太阳	t'ɒ iag	月亮	ɣɿ' liag
	日头	ɬi' dɿ		
Changsha	太阳	t'ai ian	月亮	ye lian
	日头	ʒi tɒu		
Nanchang	日头	ɬit t'ɛu	月光	ɬiɛt kuɔŋ
Meixian	日头	ɬiat t'ɛu	月光	ɬiat kuɔŋ
Guangzhou	日头	jit t'ɛu	月光	jɿt kwɔŋ
Xiamen	日	lit	月	ge?
	日头	lit t'au	月亮	ge? niũ
Fuzhou	日头	ni? lau	月	ɣuɔ

As shown in (1), some dialects have more than one word for the same meaning. The sounds vary across the dialects. But internal phonological patterning and historical correspondences allow us to identify cognates. The Hanyu Fangyan Cihui has identified the cognates and indicates such with Chinese characters. Thus on the basis of (1), we can begin to group the dialects. For example, the words 太阳 and 月亮 are used in Beijing, Ji'nan, Suzhou, and Changsha, and hence these dialects can be considered to form a group as opposed to the other dialects which do not share these words. Meixian and Guangzhou share 日头, and hence can be considered closer to each other than they are to the others. However, as we examine the word 月光, we see that Nanchang, Meixian, and Guangzhou form a group. The grouping established on the basis of 日头 therefore has to be reconciled. As more words are taken into consideration, the relationships among the dialects are not a matter of existence or nonexistence but a

matter of degree. Counting common vocabulary items is an obvious and old method for subgrouping. But in order to process a large amount of data, a rigorous formulation is necessary. In my view, it is precisely the degrees of association among dialects that need to be seriously studied at this stage of the development of Chinese dialectology.

In order to derive the degrees of association among dialects, cognate data have to be transformed in a certain way. The basis for the grouping discussed above is the existence or nonexistence of forms for certain meanings. The words in relation to the dialects are dichotomized as either presence or absence. If we consistently use "1" for presence and "0" for absence, then (1) can be transformed into (2), where the dialects are listed in columns and the words in rows.

(2) Beijing Ji'nan Suzhou Changsha Meixian Guangzhou Xiamen Fuzhou

太阳	1	1	1	1	0	0	0	0
日头	0	0	1	1	0	0	1	1
热头	0	0	0	0	1	1	0	0
日	0	0	0	0	0	0	1	0
月亮	1	1	1	1	0	0	0	0
月光	0	0	0	0	1	1	0	0
月	0	0	0	0	0	0	1	1
月娘	0	0	0	0	0	0	1	0

The arrangement in (2) shows clearly that Beijing and Ji'nan, Suzhou and Changsha, and Meixian and Guangzhou are perfectly correlated. That is, when a "1" or "0" appears in a dialect, it also appears in the other of the pair. Other pairs, on the other hand, do not exhibit such a relationship. To find the degree of association between two dialects, 2×2 tables can be constructed to show (a) the number of words scoring 0 on a dialect and 1 on the other, (b) the number of words scoring 1 on both dialects, (c) the number of words scoring 0 on both dialects, and (d) the number of words scoring 1 on a dialect and 0 on the other. For example, on the basis of (2), the contingency tables for the pairs Beijing-Ji'nan, Beijing- and Xiamen-Fuzhou are given in (3).

		Beijing	
		0	1
Ji'nan	1	0(a)	2(b)
	0	6(c)	0(d)

		Beijing	
		0	1
Meixian	1	2(a)	0(b)
	0	4(c)	2(d)

		Xiamen	
		0	1
Fuzhou	1	0(a)	2(b)
	0	4(c)	2(d)

The correlation of the two variables, dialects in our case, of each pair can be calculated by using equation (4), which was first derived by the statistician Karl Pearson in 1901.

(4)

$$\phi = \frac{bc - ad}{\sqrt{(a+c)(b+d)(a+b)(c+d)}}$$

The correlation coefficient so derived is the phi coefficient in statistics. Its value varies from +1 to -1. It indicates both the direction and the strength of relationship between two variables. The sign indicates that the two variables are either positively or negatively correlated. The value 0 means that the two variables are not correlated. The higher the value, the stronger the association.

The correlation equation applied to the contingency tables in (3) yields the results in (5).

- (5) Beijing-Ji'nan correlation coefficient: 1.0000
 Beijing-Meixian correlation coefficient: -0.3333
 Xiamen-Fuzhou correlation coefficient: 0.5774

Since Beijing and Ji'nan have the same words as shown in (1), they are perfectly correlated. Xiamen and Fuzhou are closer related (0.5774) than Beijing and Meixian (-0.3333). Since these coefficients are derived on the basis of 8 lexical items only, they have no useful generality for measuring the degrees of relationship among these dialects. What I have presented so far is only an illustration of the quantification procedures used in this study. The data base and the calculation procedures are presented below.

The Hanyu Fangyan Cihui contains 905 words in Putonghua. Each page contains 2 words. Under each word the corresponding items in 18 localities are listed in Chinese characters as well as in phonetic forms. As said before, the characters represent the identified cognate words. In (1) we presented only some of the dialects for illustration. In order to describe the data base for this study fully, let us look at the word 'moon' again. Listed in (6) are all the 18 dialects and the various forms of this word in Chinese characters, phonetic transcriptions being omitted here.

- (6) Beijing 月亮
 Ji'nan 月亮
 Shenyang 月亮
 Xi'an 月亮
 Chengdu 月亮
 Kunming 月亮
 Hefei 月亮
 Yangzhou 月亮, 亮月子

Suzhou	月亮
Wenzhou	月光
Changsha	月亮
Nanchang	月光
Meixian	月光
Guangzhou	月光
Yangjiang	月亮
Xiamen	月, 月娘
Chaozhou	月, 月娘
Fuzhou	月

All the Chinese dialect groups are represented here. Beijing, Ji'nan, and Shenyang represent the Northern Mandarin group, Xi'an the Northwestern Mandarin, Chengdu and Kunming the Southwestern Mandarin, Hefei and Yangzhou the Eastern Mandarin, Suzhou and Wenzhou the Wu, Changsha the Xiang, Nanchang the Gan, Meixian the Kejia, Guangzhou and Yangjiang the Yue, Xiamen and Chaozhou the Southern Min, and Fuzhou the Northern Min group.

In preparing the data for computer processing, each distinct item, judged on the basis of morpheme identification as represented in Chinese characters, was treated as an entry of which the occurrence or nonoccurrence in each dialect was marked "1" or "0." Thus the 5 words corresponding to the Putonghua yueliang (月亮, 亮月子, 月光, 月, 月娘) were treated as 5 distinct words and thus the presence or absence in each dialect was marked "1" or "0" as in (7).

```
(7) 001B01 11111111010001000
      001B02 000000010000000000
      001B03 00000000101110000
      001B04 000000000000000111
      001B05 000000000000000110
```

The first three digits coded the page number, page 1 in this case. The next letter, "A" or "B", represented the first or the second half of the page where the word was found. The next two columns were for the distinct words coded in an arbitrary sequence beginning with "01." After the space in the seventh column, the "1" or "0" mark was given for each of the dialects Beining, Ji'nan, Shenyang, etc. in the sequence as shown in (6).

Of the 905 Putonghua words, there are a total of 6,454 items for the dialects. All the 6,454 items were coded in the same way as just described. In the Hanyu Fangyan Cihui, these words are grouped into

nouns, verbs, adjectives, pronouns, measure words, adverbs, and prepositions and connectives. Correlation coefficients were obtained for these individual categories as well as for the entire data. The SPSS (Statistical Package for the Social Sciences) computer package was used to run the statistics.⁴ The phi coefficient, discussed above, is the Pearson product-moment correlation coefficient calculated on nominal data.⁵ Therefore in the actual computer run the product-moment coefficient equation given in (8) was used (see Nie et al 1975).

(8)

$$r = \frac{\sum_{i=1}^N X_i Y_i - (\sum_{i=1}^N X_i)(\sum_{i=1}^N Y_i)/N}{\{[\sum_{i=1}^N X_i^2 - (\sum_{i=1}^N X_i)^2/N][\sum_{i=1}^N Y_i^2 - (\sum_{i=1}^N Y_i)^2/N]\}^{1/2}}$$

where X and Y are scores of words on two dialects whose degree of association is being calculated.

The correlation coefficients for the individual categories of nouns, verbs, etc. will not be discussed in this paper because of space limitation. The correlation coefficients for pairs of the 18 dialects thus computed with the entire data are given in Tables 1a and 1b. The level of significance computed is .001. That is, the correlation due to chance is statistically insignificant. The coefficients indicate strength of association. The higher the value of the coefficient is the closer the related dialects in terms of the lexicon.

To illustrate the use of the tables, let us now answer the question whether Xi'an is closer to Beijing or to Ji'nan. We look at line 4 of Table 1a and find Xi'an heading the row. Its correlation coefficients with the other dialects are listed across and on to Table 1b. In table 1a we find its correlation coefficient with Beijing to be 0.6108 and its coefficient with Ji'nan to be 0.6076. The answer to the question is Xi'an is closer to Beijing. Thus we have provided quantitative indices to dialect affinity in term of the lexicon.

The distance among the dialects can be ranked according to the coefficients. Take Beijing for instance, the dialect closest to it is Shenyang; the next closest is Ji'nan; the next closest is Xi'an; etc. The rankings in relation to each of the dialects are given in Table 2. In this table the highest rank is "1" and the lowest is "17". However, with respect to Changsha, two of the coefficients have the same value. Both are ranked number 6, and the lowest rank is "16" rather than "17." To read Table 2, first find the name of the dialect in the rows. Then read across the columns to find the ranking of the other dialects in relation to this dialect.

All the coefficients can also be ranked. In this ranking we can compare readily the position of a particular pair among all the pairs. The ranks are given in Table 3. Because of some tie scores, the ranks are from 1 to 152. Now we see in the table that the Shenyang-Beijing pair ranks first and the Xiamen-Suzhou pair ranks last.

	Beijing	Ji'nan	Shenyang	Xi'an	Chengdu	Kunming	Hefei	Yangzhou	Suzhou
Beijing	1.0000	.6715	.6983	.6108	.4478	.4902	.4784	.5110	.2891
Ji'nan	.6715	1.0000	.6421	.6076	.4533	.5333	.5088	.5287	.3099
Shenyang	.6983	.6421	1.0000	.5881	.4254	.4818	.4746	.4936	.2866
Xi'an	.6108	.6076	.5881	1.0000	.4874	.5455	.4993	.5396	.3169
Chengdu	.4478	.4533	.4254	.4874	1.0000	.5530	.4802	.5056	.2951
Kunming	.4902	.5333	.4818	.5455	.5530	1.0000	.5431	.5731	.3547
Hefei	.4784	.5008	.4746	.4993	.4802	.5431	1.0000	.6014	.3432
Yangzhou	.5110	.5287	.4936	.5396	.5056	.5731	.6014	1.0000	.4129
Suzhou	.2891	.3099	.2866	.3169	.2951	.3547	.3432	.4129	1.0000
Wenzhou	.2179	.2311	.2104	.2211	.2115	.2492	.2342	.2621	.3128
Changsha	.4613	.4872	.4487	.4836	.4854	.5383	.4836	.5052	.3452
Nanchang	.4428	.4546	.4179	.4475	.4233	.4767	.4732	.5201	.3755
Meixian	.2149	.2123	.1930	.2013	.1658	.1931	.1772	.1912	.1821
Guangzhou	.2401	.2215	.2037	.2090	.1791	.2204	.1993	.2176	.1841
Yangjiang	.2252	.1984	.1872	.1807	.1480	.1955	.1832	.1942	.1587
Xiamen	.1987	.1641	.1428	.1332	.0891	.1248	.1069	.1247	.0798
Chaozhou	.2136	.1737	.1608	.1396	.0984	.1290	.1190	.1300	.0972
Fuzhou	.2693	.2184	.1920	.2014	.1399	.1613	.1489	.1752	.1230

Table 1a: Lexical Correlation Coefficients

	Wenzhou	Changsha	Nanchang	Meixian	Guangzhou	Yangjiang	Xiamen	Chaozhou	Fuzhou
Beijing	.2179	.4613	.4428	.2149	.2401	.2252	.1987	.2136	.2693
Ji'nan	.2311	.4872	.4546	.2123	.2215	.1984	.1641	.1737	.2184
Shenyang	.2104	.4487	.4179	.1930	.2037	.1872	.1428	.1608	.1920
Xi'an	.2211	.4836	.4475	.2013	.2090	.1807	.1332	.1396	.2014
Chengdu	.2115	.4854	.4233	.1658	.1791	.1480	.0891	.0984	.1399
Kunming	.2492	.5383	.4767	.1931	.2204	.1955	.1248	.1290	.1613
Hefei	.2342	.4836	.4732	.1772	.1993	.1832	.1069	.1196	.1489
Yangzhou	.2621	.5052	.5201	.1912	.2176	.1942	.1247	.1300	.1752
Suzhou	.3128	.3452	.3755	.1821	.1841	.1587	.0798	.0972	.1230
Wenzhou	1.0000	.2610	.2817	.1896	.1949	.1693	.1022	.1012	.1414
Changsha	.2610	1.0000	.5551	.2260	.2275	.2008	.1195	.1353	.1603
Nanchang	.2817	.5551	1.0000	.2722	.2457	.2290	.1331	.1498	.1844
Meixian	.1896	.2260	.2722	1.0000	.3022	.2784	.1658	.1856	.1412
Guangzhou	.1949	.2275	.2457	.3022	1.0000	.4776	.1707	.2118	.1647
Yangjiang	.1693	.2008	.2290	.2784	.4776	1.0000	.1860	.2158	.1568
Xiamen	.1022	.1195	.1331	.1658	.1707	.1860	1.0000	.3380	.2800
Chaozhou	.1012	.1353	.1498	.1856	.2118	.2158	.3380	1.0000	.2459
Fuzhou	.1414	.1603	.1844	.1412	.1647	.1568	.2800	.2459	1.0000

Table 1b: Lexical Correlation Coefficients

	Beijing	Ji'nan	Shenyang	Xi'an	Chengdu	Kunming	Hefei	Yangzhou	Suzhou	Wenzhou	Changsha	Nanchang	Meixian	Guangzhou	Yangjiang	Xiamen	Chaozhou	Fuzhou
Beijing	-																	
Ji'nan	2	-																
Shenyang	1	2	-															
Xi'an	1	2	3	-														
Chengdu	7	6	8	3	-													
Kunming	7	6	8	3	2	-												
Hefei	7	3	8	4	6	2	-											
Yangzhou	6	4	9	3	7	2	1	-										
Suzhou	10	8	11	6	9	3	5	1	-									
Wenzhou	9	7	11	8	10	5	6	3	1	-								
Changsha	7	4	8	6	5	2	6	3	9	10	-							
Nanchang	7	5	9	6	8	3	4	2	10	11	1	-						
Meixian	5	6	9	7	15	8	14	10	13	11	4	3	-					
Guangzhou	4	6	11	10	15	7	12	8	14	13	5	3	2	-				
Yangjiang	4	7	10	13	17	8	12	9	15	14	6	3	2	1	-			
Xiamen	3	7	8	9	16	11	14	12	17	15	13	10	6	5	4	-		
Chaozhou	4	7	8	10	16	13	14	12	17	15	11	9	6	5	3	1	-	
Fuzhou	2	4	6	5	16	10	13	8	17	14	11	7	15	9	12	1	3	-

Table 2: Ranking of Dialect Closeness in Reference to Each Dialect in the Rows.

	Bei'jing	Ji'nan	Shenyang	Xi'an	Chengdu	Kunming	Hefei	Yangzhou	Suzhou	Wenzhou	Changsha	Nanchang	Meixian	Guangzhou	Yangjiang	Xiamen	Chaozhou
Ji'nan	2																
Shenyang	1	3															
Xi'an	4	5	7														
Chengdu	40	38	43	25													
Kunming	24	15	29	11	10												
Hefei	31	21	34	22	30	12											
Yangzhou	18	16	23	13	19	8	6										
Suzhou	57	54	58	52	56	48	50	46									
Wenzhou	80	71	88	77	87	66	70	64	53								
Changsha	36	26	39	28	27	14	28	20	49	65							
Nanchang	42	37	45	41	44	33	35	17	47	59	9						
Meixian	83	85	101	92	120	100	115	103	112	104	74	62					
Guangzhou	69	76	90	89	114	78	94	81	110	98	73	68	55				
Yangjiang	75	96	106	113	130	97	111	99	126	119	93	72	61	32			
Xiamen	95	122	131	137	151	141	146	142	152	147	145	138	120	118	107		
Chaozhou	84	117	124	135	149	140	144	139	150	148	136	128	108	86	82	51	
Fuzhou	63	79	102	91	134	123	129	116	143	132	125	109	133	121	127	60	67

Table 3: Ranking of Dialect Closeness of All Pairs.

The statistics neatly show the degrees of lexical association. However, we need to pause to consider the validity of the method in general and the nature of the statistics in particular.

3. Validity of Lexicostatistics

In historical-comparative linguistics, inferences about language relationships are made on the basis of phonological correspondences, morphological-features, and lexical cognates. It is somewhat curious for Annette J. Dobson (1978:58) to state: "Linguists and anthropologists make inferences about the relationships and history of languages within a family from vocabularies. They count the number of cognate words shared by each pair of present-day languages and use these data to reconstruct the ancestry of the family." The use of cognate words exclusively in the study of genetic relationships in recent linguistics history first appeared in the 1950's. Morris Swadesh (1950) first suggested in an article on Salish internal relationships a statistical method which took into consideration the percentage of cognate words existing in pairs of related languages to determine the degrees of relationship or the time-depths of the language split. At the publication of Swadesh's article, many linguists showed an increasing interest in the application of the mathematical method to historical linguistics.⁶ This particular lexicostatistical method is called glottochronology.

Glottochronology as developed in the 1950's uses about 200 "basic words" to measure the percentage of shared cognates in a pair of languages. It was established on the basis of counts from some languages that on the average about 81% of the "basic" words of a language will survive as cognates after 1,000 years. This means that two related languages 1,000 years after they have split off from the parent language will have 66% overlapping (81% of 81%) cognates. This principle is then used to determine the time-depths, and by comparing the time-depths of languages or dialects one can obtain the degrees of relatedness. Generally speaking, the mathematical formula to derive the time in units of one thousand years is given in (9).

$$(9) \quad t = \log C \div 2 \log r.$$

In (9), t is time; C is the fraction of corresponding test-list equivalents that are cognate between the two related languages; r is the retention rate assumed.

In the 1950's, the calibration of time-depths was the most exciting function of glottochronology. However, criticisms of this particular lexico-statistical method quickly followed. Criticisms have been directed especially at the concept of "basic" vocabulary and at the validity of the retention rate, which assumes a uniform and steady change over time. C. Douglas Chretien (1962) states that the functions of glottochronology does not correspond to its hypotheses and concludes that the results obtained by various glotto-chronological studies in the 1950's have been illusory. Karl V. Teeter (1963) states that only on the basis of correspondences, validated by the re-construction of grammatical systems and their comparison, that we can arrive at statements of genetic relationship and its details. He further states that words are on the

surface of language, and they may be freely added or dropped as the culture changes. His conclusions are that any regularity to lexical attrition is a cultural regularity, and the history of culture is not the same as the history of language. I will have more to say about language history and culture history later.

Wang Yude (1960) represents the first attempt to apply glotto-chronology to determine chronological linguistic relationships to Chinese dialects. He prepared a list of 200 words from Beijing, Suzhou, Xiamen, Guangzhou, and Meixian on the basis of Swadesh's "basic" word list. Then he tabulated the number of shared cognates in pairs of these five dialects. Time-depths were then calculated with Swadesh's and Hottori's modified equations. However, since he covered only 5 dialects, the general use of the results as indications of dialect affinity is limited.

Other lexicostatistical methods have also been designed to measure language relationships and to determine subgrouping. They are often built upon the principles of glottochronology, especially those of measuring percentage of shared cognates. One method that deserves special mentioning in this context of quantification of Chinese dialect affinity is Hsin-I Hsieh's (1977) phono-lexico-statistic method. Essentially, Hsieh counts the number of phonological forms shared by two dialects in some cognate items but not in others. The basis of this quantification is not cognates but phonological forms in cognates. He applies such a method to 20 dialect localities in Jiangsu to determine the subgrouping of these localities. The phonological forms being considered are the various reflexes of the Even Tone category of Middle Chinese which appear in syllables which had a voiced initial in Middle Chinese. Using the Report on the Survey of Dialects in Jiangsu Province, he counts 533 items in this category for these 20 localities. Of these 533 items 43 appear in different categories of tones in these twenty dialects. The sharing of these forms in pairs of dialects is then tabulated. The tabulated numbers are then used to determine subgrouping. He further points out that the ratio of shared items over items compared can be taken as a statistical measurement of dialect relationships. However, he does not pursue this point further and thus leaves the tabulation in its raw data form.

Now we return to our study of the relationships of the 18 dialects given in the Hanyu Fangyan Cihui. Does the product-moment correlation calculation yield meaningful coefficients for interpretation of dialect affinity? To evaluate the validity of this method, we need to discuss the following questions: (a) Is vocabulary a valid basis for determining dialect closeness? (b) Is the statistical procedure appropriate for this kind of data? (c) What generalizations can one make with the results?

Is vocabulary a valid basis for determining dialect relationships? My feelings are that it all depends on what is meant by relationships. As mentioned above, Teeter's view is that words are cultural phenomena and hence have little to do with the genetic system of language. So far in this paper, I have not yet asserted that my method will yield a genetic relationship. Language does not exist apart from culture. Indeed, lexical changes often reflect cultural evolution. In the history of Chinese, the dialects of cultural centers have played a dominant role in lending lexical items to other dialects. It is well known that words of

dominant dialects have been borrowed into other dialects. The lexicon thus can be considered a composite form of language history and culture. By using lexical items as data, what I propose to measure is the dialect closeness irrespective of their historical derivation and genetic affiliation. The results can be viewed as the synchronic closeness as a consequence of language history and cultural interaction.

Is the statistical procedure appropriate for this kind of data? The Pearson product-moment has been frequently used in finding correlations of bivariate data which are nominal-dichotomous. As I understand it, no assumptions are necessary for the computation of a Pearsonian coefficient.

Then, how do we interpret the coefficients? That is, what generalizations can one make with the results? Interpretation of a given correlation coefficient is somewhat elusive. First of all, we know that the presence of a correlation between two variables does not necessarily mean that a causal relation exists. Therefore, the results are not appropriate for interpretation of direction of dialect influence. The direction of influence has to be established independently. Secondly, coefficient is not the same as percentage. The coefficients calculated in this study cannot be regarded as percentages of sharing of cognates between the dialects. Thirdly, the correlation coefficient is subject to sampling variation. Depending on the nature of a particular sample, the calculated coefficient may be higher or lower than it would be in a different sample. At this juncture, it is in order to discuss what Herbert H. Clark (1973) has called the "language-as-fixed-effect fallacy."

Herbert H. Clark points out that many investigators of language statistics have treated language as fixed effect rather than correctly as random effect. The nonrandom sampling procedure causes difficulty when the investigators want to determine exactly what population they can legitimately generalize their results to. He further points out that the main problems of random sampling in language statistics are (a) defining the language population, (b) sampling without bias from this population, and (c) sampling by a procedure that other investigator can repeat. Now let us examine our dialect data in the Hanyu Fangyan Cihui. The words are certainly high frequency words. But there are many more other words existing in the dialects which are not included. It is therefore not reasonable to consider this set of data the population. But then the sampling or the selection of words by the authors of the Hanyu Fangyan Cihui represents their view of what are common, ordinary lexical items. It is difficult to say that the selection was without bias in the statistical sense. As the selection was more or less intuitive, rigorous procedures are not available. Clark acknowledges that an entirely different approach to the study of language does exist. This different approach is to work from single cases. This method has had a long and respectable tradition in linguistics. Because of the sampling problems inherent in our treatment of the data in the Hanyu Fangyan Cihui, I consider our work here a single case study. That is, the coefficients are considered as relative degrees of association for the dialects on the basis of the lexical items given in the Hanyu Fangyan Cihui. No immediate generalizations are made about the population. However, this does not mean that the generalizations derived from the data and about the

data cannot corroborate the results of other case studies. It is hoped that this study presents a useful method and the results give a fairly adequate indication of the degrees of synchronic, not necessarily genetic, closeness of Chinese dialects in lexicon.

4. Lexical Affinity and Genetic Subgrouping

The degrees of closeness among the dialects with respect to the lexicon are already given in Tables 1a and 1b. The rankings of closeness are already given in Tables 2 and 3. In this section we will look at the relatedness from a different angle. The coefficients can be used to subgroup the dialects. In the following, we will use the word "level" to mean the minimum correlation coefficient. For example, level .65 means that the correlation coefficients are .65 or greater. By fixing the level at a certain point, we can group together the dialects which have correlation coefficients equal to or greater than that point. The process of grouping is carried out as follows: If the coefficient of a pair of dialects, say A and B, is equal to or greater than the level point, then the dialects are linked in a group, say G. If the coefficient of a third dialect, say C, and either of the two dialects, say B, is equal to or greater than the level point, then the third dialect is similarly linked in this group. In this example, A and B are directly linked; so is C and B. But because of the linking, now A, B, and C are all linked in group G. If the correlation coefficient of the pair A and C is at that level, then of course A and C are also directly linked. If the coefficient is below that level, then they are indirectly linked through B. In the subgrouping below, we will utilize the notions "directly linked" and "indirectly linked" in the discussion. As said before, words are results of language history and cultural influence. We therefore do not claim that the correlation coefficients derived in this study characterize the closeness of the genetic relationships of the dialects. However, comments will be frequently made in reference to the known genetic subgrouping.

Tables 1a and 1b show that the coefficients are lower than .70. In the following, the levels are given at the interval of .05 in a decreasing order. If a coefficient is at a certain level, then the correlated dialects are given in a group.

- (10) Level .65
 (a) Beijing, Ji'nan, and Shenyang.
 (b) The other dialects are not linked to one another at this level.

Beijing, Ji'nan, and Shenyang are close to one another. The other dialects do not show such a high degree of correlation. The genetic Northern Dialect group is usually subdivided into Northern, Northwestern, southwestern, and Eastern Mandarin (Yuan 1960:24). This level of correlation shows that the varieties of the Northern Mandarin subdivision are fairly close to one another in lexicon. Xi'an belongs to the Northwestern Mandarin subdivision and is not linked to Northern Mandarin at this level.

- (11) Level .60
 (a) Beijing, Ji'nan, Shenyang, and Xi'an

- (b) Yangzhou and Hefei.
- (c) The other dialects are not linked to one another at this level.

At this level, the Northern dialects Beijing, Ji'nan, Shenyang, and Xi'an form a group. Genetically Yangzhou and Hefei belong to Eastern Mandarin.

- (12) Level .55
 - (a) Beijing, Ji'nan, Shenyang, and Xi'an.
 - (b) Chengdu, Kunming, Hefei, and Yangzhou.
 - (c) Changsha and Nanchang.
 - (d) The other dialects are not linked to one another at this level.

Chengdu is directly linked to Kunming. Kunming is directly linked to Chengdu and Yangzhou. Therefore Southwestern Mandarin and Eastern Mandarin are linked. Nanchang is a Gan dialect, and Changsha belongs to Xiang. But our study here shows that they are close to each other. This association lends support to Yuan Jiahua's (1960:128) view that Gan and Xiang are lexically close. Gan and Kejia, which is represented by Meixian in this study, are often said to be close to each other because of the sharing of the diachronic rule that aspirates the obstruent initials which in Middle Chinese were voiced. But in vocabulary, they are linked at a point much lower than this level.

- (13) Level .50
 - (a) Beijing, Ji'nan, Shenyang, Xi'an, Chengdu, Kunming, Hefei, Yangzhou, Changsha, and Nanchang.
 - (b) The other dialects are not linked to one another at this level.

The Xiang and Gan dialects are linked to the Northern dialects at this level. Geographically, Xiang and Gan are situated in the central region of the Chinese language area. Historically, cultural dominance has been coming from northern regions. The closeness of Xiang and Gan to Northern dialects as shown here might very well be a reflection of such history.

- (14) Level .45
 - (a) Beijing, Ji'nan, Shenyang, Xi'an, Chengdu, Kunming, Hefei, Yangzhou, Changsha, and Nanchang.
 - (b) Guangzhou and Yangjiang.
 - (c) The other dialects are not linked to one another at this level.

Both Guangzhou and Yangjiang are Yue dialects. They are linked to each other for the first time at this level.

- (15) Level .40
 - (a) Beijing, Ji'nan, Shenyang, Xi'an, Chengdu, Kunming, Hefei, Yangzhou, Changsha, Nanchang, and Suzhou.
 - (b) Guangzhou and Yangjiang.
 - (c) The other dialects are not linked to one another at this level.

Phonologically, Suzhou is close to Wenzhou. Lexically, Suzhou is linked

through Yangzhou to the Northern dialects, Xiang, and Gan while Wenzhou stands alone at this level. Suzhou and Yangzhou are geographically close to each other.

(16) Level .35

- (a) Beijing, Ji'nan, Shenyang, Xi'an, Chengdu, Kunming, Hefei, Yangzhou, Changsha, Nanchang, and Suzhou.
- (b) Guangzhou and Yangjiang.
- (c) The other dialects are not linked to one another at this level.

The lexical grouping is the same as that established at level .40. But the linking of the individual dialects is slightly different. At level .40, Suzhou is linked to Kunming indirectly because it is directly linked to Yangzhou and Yangzhou in turn is directly linked to Kunming. At level .35, Suzhou is directly linked to Kunming.

(17) Level .30

- (a) Beijing, Ji'nan, Shenyang, Xi'an, Chengdu, Kunming, Hefei, Yangzhou, Changsha, Nanchang, Suzhou, and Wenzhou.
- (b) Meixian, Guangzhou, and Yangjiang.
- (c) Xiamen and Chaozhou.
- (d) Fuzhou stands alone.

At this level, Wenzhou is directly linked to Suzhou. But since Suzhou is linked to the other dialects in group (a), so is Wenzhou grouped there. Also at this level, the Southern Min dialects, Xiamen and Chaozhou, are linked. Fuzhou, a Northern Min dialect, stands alone. Meixian, a Kejia dialect, is linked at this level to the Yue dialects. Yuan Jiahua (1960:171) gives geographical proximity for the cause of mutual borrowing of words among the Yue and Kejia dialects.

(18) Level .25

All dialects are linked to one another, some directly and some indirectly. Of special interest are the following direct linking ("--" for "is directly linked to"):

- (i) Suzhou--Beijing, Ji'nan, Shenyang, Xi'an, Chengdu, Kunming, Hefei, Yangzhou, Wenzhou, Changsha, and Nanchang.
- (ii) Wenzhou--Yangzhou, Suzhou, Changsha, and Nanchang.
- (iii) Meixian--Nanchang, Guangzhou, and Yangjiang.
- (iv) Guangzhou--Meixian and Yangjiang.
- (v) Xiamen--Chaozhou and Fuzhou.
- (vi) Chaozhou--Xiamen.
- (vii) Fuzhou--Beijing and Xiamen.

Yangzhou, Changsha, and Nanchang provide the linkage between the Wu dialects (Suzhou and Wenzhou) and the Northern dialects. Nanchang is the link between the Northern and the Yue dialects. The link between Beijing and Fuzhou completes the chain of all the dialects. It is somewhat curious that Fuzhou is directly linked to Beijing but not to Chaozhou, a

Southern Min dialect, at this level.

(19) Level .20

All dialects are linked to one another, some directly and some indirectly. Fuzhou is now directly linked to the Southern Min dialects.

We have examined dialect subgrouping in terms of the lexicon. The levels of association have been fixed reasonably at .05 intervals to avoid biased manipulation of the data on the basis of known genetic subgrouping. It is reassuring to find that no instances of the subgrouping of the dialect according to the correlation coefficients have contradicted well known facts of the Chinese language. In the following we will discuss genetic boundaries and degrees of lexical correlation. Listed in (20) are the major dialect groups and the minimum correlation coefficients for the member dialects. For example, in the Northern Mandarin group, Beijing-Ji'nan coefficient is .6715, Beijing-Shenyang .6983, and Ji'nan-Shenyang .6421. The minimum coefficient that allows these localities to be linked is therefore .6421

(20)	(a) Northern Mandarin:	.6421
	Beijing, Ji'nan, Shenyang	
	(b) Northern and Northwestern Mandarin	.6076
	Beijing, Ji'nan, Shenyang, Xi'an	
	(c) Eastern Mandarin:	.6014
	Yangzhou, Hefei	
	(d) Southwestern Mandarin:	.5530
	Chengdu, Kunming	
	(e) Yue:	.4776
	Guangzhou, Yangjiang	
	(f) Mandarin dialects:	.4254
	Beijing, Ji'nan, Shenyang, Xi'an,	
	Chengdu, Kunming, Hefei, Yangzhou	
	(f) Southern Min:	.3380
	Xiamen, Chaozhou	
	(g) (Southern and Northern) Min:	.2459
	Xiamen, Chaozhou, Fuzhou	

Missing in (20) are Kejia, Xiang, and Gan. Since each of these dialects is represented by one locality only, no minimum group figures are available here. List (20) provides a summary of the degrees of closeness of dialects within the genetic groups. A generalization can be readily made: The dialects in the north are much more closely related than those in the south in lexicon.

6. Conclusions

In this paper I have presented the use of the Pearson product-moment correlation to calculate the degrees of lexical association among the 18 dialects given in the Hanyu Fangyan Cihui. The correlation coefficients are considered the degrees of association. In the past we had to rely on intuitive feelings to talk about strengths of association. We now can deal with vocabulary beyond simple counts of percentage of cognates. These indices to affinity are given in Tables 1a and 1b. There we see the

relationships of the dialects in depth.

Although this statistical work is intended to be a single case study, its coverage of a large amount of lexical data should allow us to see the generality of Chinese dialect affinity. Moreover, our lexical subgrouping of the dialects does not contradict known linguistic facts. I am therefore confident that this method can be used to find syntactic and phonological associations as well. And thus I have presented a method for quantification of dialect affinity.

NOTES

¹ A condensed version of Li (1973) first appeared in the Chinese Year Book, Shanghai, 1937.

² These words are taken from the Hanyu Fangyan Cihui, p. 1. As will be discussed later, the Hanyu Fangyan Cihui includes data for 18 dialects. Here in this exposition, I list 9 dialects only. Also, tones for these items are omitted as they are not immediately relevant in this illustration.

³ See for example Glass and Stanley (1970:161).

⁴ See Nie et al (1975) for the nature of the statistics package.

⁵ The proof that the phi coefficient is the Pearson product-moment correlation coefficient between two variables can be found, e.g. in Gene V. Glass and Julia C. Stanley (1970:159-160).

⁶ Following are some representative works related to glottochronology: Robert B. Lees (1953), Shiro Hattori (1953), Gordon H. Fairbanks (1955), Morris Swadesh (1955), Sarah C. Gudschinsky (1955), Dell H. Hymes (1960), Wang Yude (1960), Karl V. Teeter (1960), C. Douglas Chretien (1962), Isidore Dyen et al (1967), and Rudolph C. Troike (1969).

⁷ See for example, Robert L. Oswalt (1973) and David Sankoff (1970).

⁸ See for example, John B. Carroll (1961).

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THE ESPERANTO OF EL POPOLA ĈINIO

Chin-chuan Cheng

The use of Esperanto in China since the turn of the century has cast Chinese elements onto Esperanto to reflect cultural characteristics. From the writings of the monthly magazine *El Popola Ĉinio*, Chinese innovations, especially those belonging to word formation and idioms, are identified. On the basis of the findings, the relationships between international norm and local variation are discussed.

In the past few years, Esperanto associations, clubs, and classes have been set up one after another in various parts of China. One can easily see that a great desire to learn things foreign surged after 10 years of inward searching during the "cultural revolution" of 1966-76. Naturally, learning of Esperanto, among other non-Chinese languages, for international communication fits well with such an outward-looking mentality. Moreover, Chinese Esperantists have enjoyed relatively strong support from the government and the general public mainly for the reason that earlier Esperantists in China earned the credit of being instrumental in Chinese language reform and in the promotion of left-wing literature during the first half of the century.

Esperanto was introduced to China more than 70 years ago. The first translation of 'Esperanto' was 'Wanguo xinyu' ('Ten thousand nations' new language') by Wu Zhihui and Li Shizeng in 1908 in France in their magazine *Xin Shiji* (*New Century*) weekly. Then the Japanese translation 'Shijieyu' in Chinese characters meaning 'world language' was adopted in China and has been used since the 1910's. Japanese Esperantists, however, soon decided to use a Kana transliteration and abandoned this translation (Qian 1918a, 1918b).

According to Hou (1981b), Harbin in Northeast China had the earliest Esperanto speakers. At the turn of the century, some Russian merchants from Vladivostok taught local people Esperanto. The first Chinese Esperanto organization was established in 1908 (Chen 1957). Among the better known journals, *Dongfang Zazhi* (*The Eastern Miscellany*) published an article on the world outlook of Esperanto in 1913 by Lu (1913). In 1917 the monthly *Xin Qingnian* (*New Youth*) published a rebuttal by Tao Menghe to Qian Xuantong's promotion of Esperanto in China. On the eve of the 1919 May Fourth Movement, the Chinese logographic writing system and the feudal thoughts embedded in classical literature were viewed most critically. Qian (1918c), among others, took the extreme view that the Chinese language was no good and that Esperanto would salvage Chinese language problems. The numerous notes concerning Esperanto published in *Xin Qingnian* led to the discussion of romanization of the Chinese language (Zhu 1918, Qian 1918d, Yao 1918).

In 1921 Beijing University added Esperanto language courses to its curricula; the classes were taught by the blind Russian poet V. Eroshenko. Three years later, in Beijing an Esperanto school was established in 1925. In 1922 *Dongfang Zazhi* in the May issue published several articles in a section entitled "International

Language Movements". One of the articles was by Hu Yuzhi (1922), who is the current president of the Chinese Esperanto League. Hu Yuzhi (better known in Esperanto circles as Hujucz) attended an international Esperanto meeting in 1928 (Chen 1957). During the 1930's, Chinese Esperantists were active in both the Anti-Japanese War and left-wing literature movements. In 1931 left-wing Esperantists formed the Chinese Proletarian Esperantist Union (*Ĉina Proleta Esperantista Unio*). In the ensuing years, under the slogan "By Esperanto for the liberation of China" ("Per Esperanto por la liberigo de Ĉinio"), the union published a newsletter *Chinese Proletarian Esperantist* (*Ĉina Proleta Esperantisto*), *The World* (*La Mondo*), *China Roars* (*Ĉinio Hurlas*), *Voices from the Orient* (*Votoj el Oriento*), *Oriental Courier* (*Orienta Kuriero*), and *China Herald* (*Heroldo de Ĉinio*) (People's Daily March 13, 1951; Chen 1978). Because of the Anti-Japanese War, World War II, and then the Civil War, these publications did not last very long. As soon as the People's Republic of China was established in 1949, Hu Yuzhi started to organize an Esperantist association. On March 11, 1951 the Chinese Esperanto League (*Ĉina Esperanto-Ligo*) was established in Beijing (People's Daily March 13, 1951). In 1956 a Chinese delegation attended an international Esperanto congress for the first time since 1949 (Zhang 1956).

Current Chinese Esperanto activities most visible abroad are the publishing of the monthly *El Popola Ĉinio* (*From People's China*). A parallel activity of Esperanto radio broadcasting started in December 1964 (Esperanto Section of Radio Beijing 1980) and continues today. Furthermore, over 400 Chinese works have been translated into Esperanto in the past 30 years (Hou 1981a).

During the early years of its use in China, Esperanto was considered unworthy of learning by some scholars who argued that as each speaker would use his own preferred words, the language would become idiosyncratic and extremely complex after a period of time (Zhu 1918). It is sociolinguistically interesting to observe that more than 60 years later, the language has not divided into mutually unintelligible groups (Sherwood forthcoming b). Indeed, the language has been developing in lexicon since its creation about a century ago. Chen (1957), for example, lists the increase in the size of vocabulary on the basis of I. Lapenna's study as follows:

1887 904 roots
1894 2,599 roots
1954 7,866 roots

What did Chinese Esperanto users contribute to the development of the language? More than 60 years ago, Qian (1918a) made the following statements concerning use of Chinese in Esperanto: (1) Chinese characters could not be mixed with the alphabetic, phonetic spelling; (2) Chinese meanings were all so vague that incorporation of them would not be appropriate; (3) the multitude of homophones made Chinese unsuitable for Esperanto. However, he suggested that some special terms of ancient Chinese history should be added to the Esperanto vocabulary. Qian's personal view could not necessarily dictate the development of Esperanto in China. After all, China has gone through various stages of isolation and outside contact in the last hundred years. Foreign languages as part of foreign culture were bound to be modified somewhat to accommodate Chinese realities. I have discussed elsewhere (Cheng 1982) Chinese elements in English used in China. The main purpose of this paper is to examine Chinese use of the Esperanto language.

Phonological characteristics of Chinese Esperanto can be studied systematically by use of shortwave broadcasts. Wood (forthcoming) mentions briefly his

impressions of the special characteristics of the Esperanto spoken by Chinese announcers on Radio Beijing. He points out that the announcers have manifested a tendency not to distinguish sufficiently between voiced and voiceless consonants, and not to give the penultimate syllable sufficient stress. He says moreover that they have difficulty with certain consonant clusters. My work reported here is entirely based on the writings in *El Popola Ĉinio*. Phonological features therefore will not be dealt with further.

1. EL POPOLA ĈINIO

El Popola Ĉinio, a monthly Esperanto magazine published in Beijing by the Chinese Esperanto League, reached its thirtieth year and the 260th issue in May 1980. It was first published on May 4, 1950 by Beijing Foreign Language Publishing House (People's Daily, March 13, 1951; Honfan 1980). Its publishing was interrupted in 1954 and then resumed in 1957 with the Chinese Esperanto League as the publisher (El Popola Ĉinio Editorial Staff 1980, Honfan 1980).

The format of the periodical varied somewhat in the past years, but the contents have always been mainly about things Chinese. Indeed, Esperanto news from outside of China and current world issues appear regularly; they, however, constitute only a minor portion of each issue.

The Esperanto of *El Popola Ĉinio* is considered excellent and easy to understand among Esperanto speakers in other parts of the world. Yet, with the profusion of things Chinese in the issues, it is natural that some Chinese cultural and linguistic elements are cast onto the Esperanto language. Generally speaking, the syntax is fairly straightforward for both English and Chinese speakers, but the vocabulary shows much more Chinese characteristics.

2. SYNTAX

The syntax is predominantly Subject-Verb-Object (SVO). For example, out of about 50 accusative cases found in the article "Novjara mesago" (New year's message) only the following three appeared in an order other than SVO:

Koncerne al tio ni faros klopodojn kaj esperas, ke diverslandaj
Esperantaj organizoj kaj aktivuloj nin helpos. (1980.256.2)

About that we will do our best and hope that Esperanto organizations
and activists will help us.

Ni esperas, ke niaj legantoj varme nin helpos. (1980.256.3)
We hope that our readers will warmly help us.

Ni kore esperas, ke ili daŭre nin subtenos kaj helpos. (1980.256.3)
We sincerely hope that they will continuously support and help us.

These sentences all involve the pronoun *nin* 'us'. One also finds the non-SVO ordering in conversational Esperanto spoken by those with European language backgrounds. Sherwood (forthcoming a) in a statistical analysis of conversational Esperanto by Scot William Auld and Flemish Peter de Smedt finds that out of 179 main clauses containing transitive verbs, only 15 had a constituent order other than subject-verb-object, and only 2 of these involved other than simple elements

such as pronouns. Chinese syntax corresponding to the sentences found in *El Popola Ĉinio* does not provide the SOV order for pronouns. One can therefore conclude that this pattern is a "global" feature of Esperanto.

A major difference between the syntax of Chinese and that of many European languages is the position of subordinate clauses. In Chinese the modifying clause comes before the head noun, whereas in many European languages the embedded sentence follows the noun. I know of no Esperanto rule that explicitly governs this type of structure. However, words such as *tiu* 'that, which', *kio* 'that, who', etc. which introduce the relative clause would come conveniently after the head noun. As far as I can tell, there is no trace of Chinese clause structure in the Esperanto of *El Popola Ĉinio*; all the modifying clauses appear in the position where English relative clauses would occupy. This preliminary observation does not rule out the possibility that more adjectival forms are used in a place where subordinate clauses are also appropriate. But I do not have statistics to warrant suitable comparisons.

3. TRANSLITERATION AND INFLECTION

In terms of smaller units, Esperanto has a set of rules governing the endings for verbs, nouns, adjectives, and adverbs. On the other hand, Chinese has no inflectional endings. I know of no Chinese interference in this area. Most personal and place names are given in transliteration without adding the Esperanto noun endings. Other types of words that have been transplanted from Chinese are given appropriate inflection. Transliteration in *El Popola Ĉinio* changed in 1979 from an Esperanto approximation to the Pinyin system. This change was made uniformly for all the foreign language publications printed in the Latin alphabet in China by government decree. Because of this recent change in romanization, *El Popola Ĉinio* often includes the old spellings in parentheses, for example:

Nun iras la aktivadoj "Donu plej bonan servon" kaj "Kontentigu la klientojn" en la urboj Beijing (Pekino), Tianjin (Tiangin), Wuhan (Vuhan), Shenyang (Ŝenjang) k.a. (1981.278.3)

Now the activities of "Give the best service" and "Satisfy the customers" in the cities of Beijing, Tianjin, Wuhan, Shengyang etc. are going on.

The place names and other nouns that had been incorporated in Esperanto are properly inflected. The name *Pekino* illustrates this practice. The words *Kuomintango* 'Guomindang--Nationalist Party' and *juano* 'yuan--Chinese monetary unit' have never been changed to Pinyin spelling and are always used with an Esperanto ending. Since the use of Pinyin was adopted, place names are not inflected anymore. In case adjectival forms are needed in the text, a hyphen is inserted before the Esperanto ending "a" is added, for example:

Tan Qilong, la unua sekretario de la Kompartia Komitato de Sichuan-provinco, You Taizhong, komandanto de la Chengdu-a Milita Regiono, kaj aliaj iris respektive al Chengdu, Chongqing, Mianyang, Wenjiang, Neijiang, Nanchong, kaj Yongchuan por fari inspektadon kaj direkti savan laboron (1981.278.14)

Tan Qilong, first secretary of the Communist Party of Sichuan Province, You Taizhong, commander of the Chengdu Military Region, and others went respectively to Chengdu, Chongqing, Mianyang, Wenjiang, Neijiang, Nanchong, and Yongchuan to make inspection and to direct rescue work.

4. LEXICON

In terms of vocabulary the combination of morphemes to form words and compounds is largely left with the user; Esperanto dictionaries provide mainly the roots and affixes and the words already coined by users. There is no rule against the creation of words to make appropriate expressions. In the case of the Esperanto of *El Popola Ĉinio*, we see a few Chinese elements. Following is a list of items of this nature that are discussed in this paper. These items are given at this point without the glosses so that those who know Esperanto can make an effort to guess at their meanings. In this way, the influence of Chinese on Esperanto as discussed later will become more apparent.

dazibaŭ-o
terlito
drakboato
malgranda Du
maljuna Lin
onklino
onklo
avo
komunumano
fratineto
kunlernantoj
laborfortoj
nacimalplimulto
mil- kaj dekmilfoje
nudpiedaj kuracistoj
intelekta junulino
kvarpersona bando
iranto de la kapitalisma vojo
ĝis sekiĝo de la maroj kaj putriĝo de la ŝtonoj
kune floru cent floroj kaj vocojn donu cent skoloj

These innovations can be divided into the following categories: (a) Direct borrowing of Chinese words, (b) words coined specifically for Chinese concepts, (c) ordinary words with extended or specific meanings, and (d) Chinese idioms and set phrases.

5. DIRECT BORROWING OF CHINESE WORDS

Direct use of Chinese words in Esperanto, besides place and personal names, is fairly limited. The following are some of the more frequent ones:

Ĝi estas la komuna lingvo de la hana nacieco kaj ankaŭ oficiala lingvo de la Ĉina Popola Respubliko. (1981.278.20)
It is the common language of the Han nationality and also the official language of the People's Republic of China.

...la kuomintanga gubernia registaro rigardis ilin kiel ... (1980.256.37)
...the Guomindang (Nationalist) county government regarded them as...

...unu aŭtobusa monata bileto kostis 12 juanojn... (1979.253.10)
...one bus monthly ticket cost 12 yuans...

Multaj el la ĉeestantoj protestis kaj skribis kolektive *dazibaŭ-on* titolitan... (1979.252.36)

Many of the participants protested and wrote collectively a big-character poster titled...

The word *Kuomintango* 'Guomindang--Nationalist Party', capitalized, can be easily recognized. The adjectival form *kuomintanga* may not be immediately apparent as to what it means, but a diligent reader will find the word *Kuomintango* in Waringhien (1970) *Full Illustrated Dictionary of Esperanto* (*Plena Ilustrita Vortaro de Esperanto*). One also finds *Hano* 'Han Chinese' in the same dictionary. The word *ĵuan* from Chinese *yuan* is a monetary unit. With the word *kostis* 'cost' occurring in the context, it may not be hard to understand its meaning at all. The word *dazibaŭ* 'dazibao--big character poster' signifies something of Chinese invention.

6. WORDS COINED FOR CHINESE CONCEPTS

It is somewhat difficult to identify the second type of Chinese innovation, the type of words coined specifically to express Chinese concepts, because such an identification requires extensive studies of Esperanto etymology, which I cannot undertake at this time. Yet, there are words which look very much like Chinese in concept or form.

En la malforta flava lumo de kerosena lampo ĝemadis la akuŝantino sur la terlito. (1979.253.35)

In the weak yellow light of a kerosene lamp the woman in labor was moaning on the earthbed.

From the context where the word *terlito* occurs, I assume that it is a direct translation of the Chinese word *kang* which means 'a heatable brick bed'.

Antaŭ ol la drakboatoj atingis la lokon, standoj en unu vico altiris al si multajn homojn. (1979.253.40)

Before the dragon boats reached the place, many people had been attracted to a row of stands.

The word *drakboato* is a translation of the Chinese word *longzhou* or *longchuan* 'dragon boat--a boat with a decorative dragon head for racing'. Waringhien (1970) lists the *drakŝipo* of Scandinavian origin but not *drakboato* from Chinese.

These words of Chinese origin have been formed using simple roots and straightforward concatenation. In contrast with words of Latin origin, Claude Piron (1977) states that words thus formed are much easier to understand. He cites 'self-standing, independent' as an example. He says that *memstara* consisting of *mem* 'self' and *stara* 'standing' is a better choice than *aŭtonoma* 'autonomous' which a Chinese reader would first interpret as 'relating to the names of automobiles'. Piron calls the simpler style "global Esperanto" ("tutmonda Esperanto") and urges that this type be used instead of the Latinized version, which is comprehensible to only an elite group. From this point of view, then, the Chinese elements are very well incorporated into Esperanto by Chinese Esperantists.

7. EXTENSION OF MEANING

The third type of Chinese elements in Esperanto involves extension of the ordinary meanings of common words.

Malgranda Du, membro de la Komunisma Junulara Ligo, diplomitiĝis en supera mezlernejo, kaj ŝia hejmo estas en la kamparo (1980.256.20)
Small Du, a member of the Communist Youth League, graduated from a senior middle school, and her home is in the countryside.

...lia gvidanto venis al li kaj diris: "Maljuna Lin, ..." (1980.256.21)
...his leader came to him and said: "Old Lin, ..."

The word *malgranda* 'small' (as defined in Wells 1969 *Esperanto Dictionary*) is more fully explained in Waringhien (1970) as (1) having dimensions less than the ordinary, occupying less space; (2) not reaching high growth; (3) not reaching ordinary scale, quality, intensity. In the context of the example, none of these meanings applies. In Chinese one often addresses close associates or friends with the word *lao* 'old' added before the surname if they are of about the same age. Used in this way, the word also means 'long-standing (friend)'. It does not necessarily mean that the person addressed is old in age. Similarly, the Chinese word *xiao* 'small, young' is used to address familiar persons of either sex younger than oneself, sometimes carrying the tone of endearment. The word in this context does not necessarily mean small in size or young in age. The Esperanto words *malgranda* and *maljuna* in the above examples are used to carry the Chinese senses and thus acquire the extended meanings.

Some kinship terms are also used to address or refer to persons who are not necessarily one's own relatives. For example, the following sentence is given in a context which makes no reference to aunt-nephew relations:

Onklino Li aĝas 58 jarojn. Ŝia edzo mortis antaŭ 15 jaroj, kaj ŝi devis sola vivteni la tutan familion kun 3 filoj kaj unu filino. (1980.256.29)
Aunt Li is 58 years old. Her husband died 15 years ago, and she had to maintain the entire family with 3 sons and one daughter.

The following sentences show that other kinship terms are also used to refer to people other than one's own relatives:

Mi rapide aĉetis dekkelkajn kukojn kaj ilin donis al la komunumano dirante: "Onklo, vi nenion manĝis tuttage, pren'u ilin por manĝi en vagono!" (1979.252.35)
I quickly bought more than 10 cakes and gave them to the commune member saying: "Uncle, you did not eat anything all day long, take these to eat in the train!"

Tiam ŝi kaj ŝia fratino ploris ĉagrene pro la bonkora avo. (1979.253.38)
Then she and her sister cried sadly for the good-hearted grandfather.

Waringhien (1970) glosses *onklo* 'uncle' as (1) father's or mother's brother or (2) husband of aunt. Similarly *onklino* 'aunt' is glossed as either (1) father's or mother's sister or (2) wife of uncle. The word *avo* 'grandfather' is given as father's or mother's father. These are the ordinary meanings of the words, but in the examples, these senses do not exist. As one reads the passages in which *onklino*,

onklo, and *avo* occur, one cannot find blood relations between the persons. The use of these terms to females of mother's generation (Chinese *ayl* 'aunt', Esperanto *onklino*), males of father's generation (Chinese *shushu* 'uncle' - father's younger brother', Esperanto *onklo*, and Chinese *laobo* 'uncle, father's elder brother', Esperanto *avo*) is customary in China. The Esperanto sentences given above should be understood with consideration of Chinese culture.

In one of the sentences above, we saw the word *komunumano* 'commune member' used. The Chinese origin *sheyuan* 'commune member' does not simply mean 'member of a commune'. It specifically refers to a 'peasant', who works in an agricultural commune. Thus, the word *komunumano* has acquired a specific meaning in the Chinese social context.

The word *fratineto* is another case of specificity of Esperanto in China.

"Jes! Tute!" ŝi diris vigle, "fratino, mia patro diris en la vagono, ..." Kaj ŝi kaptis mian manon kaj vokadis min per "fratino"... Mi pensis, ke estus tre bone havi tian fratineton! (1979, 252.37)

"Yes! Entirely!" she said briskly, "Sister, my father said in the car,..." And she held my hand and called me "sister"... I thought that it would be very good to have such a younger sister!

In Butler's (1967) *Esperanto-English Dictionary* the word *fraŭlineto* is listed and glossed as 'lassie, little maid, young miss'. On the other hand, *fratineto* is not listed. The exclusion implies that the meaning of the word can be derived from *fratino* 'sister' and *et* the root for 'small'. But then what does the combination of these senses mean? Waringhien (1970) gives the word as (1) affectionate address to younger sister and (2) title of some nuns. In the example, the sense of 'nun' does not apply. It is possible to derive affectionate meaning here. But a reader who understands the Chinese language will immediately think of the Chinese word *meimei* 'younger sister' rather than the affectionate sense of a simple word 'sister'. In Chinese there are three words corresponding to sister in English. *Jiejie* means sister older than oneself; *meimei* means sister younger than oneself; and *jiemei* is a term referring to both female siblings. The words *fratino* and *fratineto* in the above example have acquired the specific meanings of Chinese words *jiejie* and *meimei*. Moreover, these words are not used here as strict kinship terms.

Another word that illustrates acculturation of Esperanto is *kunlernanto*. In the following sentence the subject 'he' is a teacher:

Li fojrefoje kontaktiĝis kun Vang Lujan, kaj admonis liajn gepatrojn kaj aliajn kunlernantojn multe prizorgi kaj helpi lin. (1978, 243.37)

He time and again met with Vang Lujan, and talked to his parents and other students in order to greatly take care of and help him.

Butler (1967) gives 'fellow student' as the meaning of *kunlernanto* and Waringhien (1970) defines it as *kamarado de lernejo* 'comrade of school'. The word corresponds to the Chinese word *tongxue*. In Chinese, *tongxue* can mean 'student' or 'fellow student'. A teacher can use *tongxue* to refer to his student. That is the sense in which the Esperanto word *kunlernanto* is used in this example.

Some words may not be clearly identifiable as being derived from Chinese, but they are used in *El Popola Ĉinio* so often that many readers may make such an

association. *Laborforto* 'labor force--able bodied person' and *nacimalplimulto* 'minority nationality' are some examples:

En la vilago ŝia familio havas plej multajn laborfortojn kaj sekve ilia vivo estas rimarkinde pli bona ol antaŭe. (1980.256.29)
In the village her family has the most labor forces and consequently their life is remarkably better than before.

Li vivas longe en la regiono de nacimalplimulto en sudokcidenta Ĉinio. (1980.256.31)
He has lived for a long time in the region of minority nationalities in southwestern China.

8. CHINESE IDIOMS AND SET PHRASES

Now we come to the fourth type of Chinese elements in the Esperanto of *El Popola Ĉinio*. Included in this category are Chinese idioms and other set phrases. Some of the phrases may be somewhat ordinary while others are rather bizarre to the Westerners. First let us look at an ordinary one:

Civilizitaj homoj kutimas interŝanĝi saluton je matena renkontiĝo, almenaŭ ili diras la vortojn mil- kaj dekmilfoje ripetitajn de la homoj dum la tuta vivo, ... (1981.270.12)
Civilized men are accustomed to exchanging salute in a morning encounter; at least they have said the words repeated thousand and ten thousand times by men during their entire life, ...

Of interest here is the phrase *mil- kaj dekmil* 'thousand and ten thousand'. This phrase simply signifies a great number. And a great number in English is said as *hundreds and thousands* rather than *thousands and ten thousands*. From the point view of the English speaker, *thousands and ten thousands* in this context is a curious expression. On the other hand, the corresponding words in Chinese make an idiomatic phrase. The reason for the difference between Chinese and English in expressing a great number is that the Chinese numeration system is based on the 4th power of 10 while the English one is based on the 3rd power of 10. In Chinese the words are *shi* 'ten', *bai* 'hundred', *qian* 'thousand', *wan* 'ten thousand', then *shiwan* 'ten ten-thousand', *baiwan* 'hundred ten-thousand', *qianwan* 'thousand ten-thousand', *yi* 'ten thousand ten-thousand'. In English the words are *ten*, *hundred*, *thousand*, then *million*. Thus the "third power" system mandates *hundreds and thousands* and the "fourth power" system requires *qian wan* 'thousands and ten-thousands' to express a great amount. Although the Esperanto translation looks ordinary on the surface, the linguistic system behind it is quite different from European languages.

Following are some phrases that require knowledge of recent Chinese social and political events to understand their meanings:

Hodiaŭ en plejparto de la produktaj brigadoj jam troviĝas nudpiedaj kuracistoj... (1979.253.6)
Today in most of the production brigades there are already barefoot doctors...

...iu intelekta junulino laboranta en ilia brigado toksigis dum sprucigado de insekticido... (1979.252.35)

...some intellectual (female) youth working in their brigade became poisoned while spreading insecticide...

Sed pro detruo de la "kvarpersona bando" la pliproduktado de industrio reduktiĝis grandpaŝe de post la jaro 1967. (1979.253.13)

But because of the sabotage by the "gang of four" the greater production of industry was reduced in big strides after the year 1967.

Intelektula junulo 'intellectual youth' meaning a high school graduate is the translation of the Chinese phrase *zhishi qingnian*. *Nudpiedaj kuracistoj* 'barefoot doctors' from Chinese *chijiao yisheng* refers to paramedics who work in the countryside. These phrases have occurred frequently and should not constitute a difficulty in comprehension for the reader who has followed closely the Chinese social and political events in the past few years. These phrases are somewhat odd but are not as bizarre as the 'capitalist roader' in the following text:

Iu el nia stacio kritikis Sekretarion Lei per dazibaŭ-o dirante, ke li estas iranto de la kapitalisma vojo. (1979.251.37).

Someone from our station criticized Secretary Lei with a big-character poster saying that he was a capitalist roader.

The period of cultural revolution saw the great language creativity of the Chinese. Many interesting phrases were coined during the political movement. 'Capitalist roader' meaning the person who is in favor of capitalism is one of these phrases. The Esperanto translation retains the authenticity of the Chinese language. English used in China also keeps such authenticity. But the feelings of strangeness on the part of Westerners have made some English teachers in China voice their views against such "Chinese English" (see Cheng 1982). In Chinese Esperanto circles, on the other hand, no such discussion has been recorded in publications.

Chinese language elements are particularly apparent when idioms are translated literally:

Ĝis sekigo de la maroj kaj putriĝo de la stonoj mi tiel faros dum la tuta vivo! (1979.252.36)

Until the seas dry and rocks crumble I will do so during my entire lifetime!

...por vigligi literaturan kaj artan kreadon estas necese praktiki la principon "kune floru cent floroj kaj vocojn donu cent skoloj". (1979.252.10)

...in order to stimulate literature and art creation it is necessary to practice the principle "let a hundred flowers bloom and a hundred schools contend".

The Chinese phrases *hai ku shi lan* 'seas dry and rocks crumble--the seas may dry and the rocks may crumble, but I will...' and *bai hua qi fang bai jia zheng ming* 'hundred flowers bloom and hundred schools contend' are literally translated into Esperanto. The Chinese metaphorical effects are thus transplanted into Esperanto.

9. INTERNATIONAL NORM AND LOCAL VARIATION

I have shown that the Esperanto used in China has acquired life through the introduction of Chinese elements, both cultural and linguistic. Esperanto would have been rather pale if no such variation were allowed. Indeed, it is such versatility that has made the language lively and natural.

As mentioned earlier, Qian (1918a) thought that the Chinese words most appropriate for Esperanto would be ancient Chinese terms. On the contrary, we have seen that most of the Chinese elements in Esperanto are related to modern Chinese society. In fact, Esperanto translations of Chinese literature are mostly from those produced in this century (Hou 1981a). It is safe to say that the involvement of Chinese Esperantists in current affairs has kept the Esperanto movement in China alive.

Local variation, which provides life to the international language, appears to be in conflict with the ideal of a language understood by all nationalities. Wood (1979) and Sherwood (forthcoming b), however, state that mutual intelligibility is maintained among the varieties of Esperanto spoken in various lands. The Esperanto community is "non-ethnic and non-territorial" (Wood 1979), yet the instrumental use of the language for international communication makes the users strive for an international norm. Wood (forthcoming) mentions that one way in which a global style can be attained is by having written and spoken material checked by editors of different native language background before presentation or publication. He cites as an example a recent selection of an English Esperantist by the Chinese Esperanto League to work with Chinese Esperantists in Beijing as a linguistic monitor.

Wells (1978) approaches the "norm" by way of discussion of "good" pronunciation in terms of "practical", "linguistic", "geographical", and "sociological" criteria. By "practical", it is meant that a good pronunciation is one which facilitates comprehension. The linguistic criterion calls for distinction between phonological contrasts. The geographical criterion measures the degree of freedom from geographical interference. Wood (forthcoming) correctly points out that "geographical" is a misnomer; what is intended is avoidance of influence of native languages. The sociological criterion means acceptance of norms emerging in the community of Esperanto users.

In light of the above discussion of Chinese use of Esperanto, we see that local variation of the international language is bound to exist. The "practical" and "linguistic" criteria are basic requirements of a common language. On the other hand, the aim to achieve a pronunciation, or usage in general, which is free from native language influences may not be attainable. Most Esperanto speakers have learned to speak the language as a second language in adulthood, and learning a second language at this stage of life is by no means a simple matter. Moreover, if avoidance of native language influence is pursued to extremes beyond the initial learning stage, it may easily result in social stigmatization. Esperanto is considered neutral and approachable mostly for the reason that it is not "owned" by anyone. That is, there are few native speakers to offend with "bad" pronunciation or "deviant" usage. A requirement of freedom from ethnolinguistic interference can become a deterring factor for the majority of speakers. In the Chinese context, this standard in a way contradicts the lofty goals of the Esperanto movement. During the early years of use of Esperanto in China, Hu (1922) emphatically pointed out that besides providing a tool for international communication, cultiva-

tion of "international heart" (internacia koro) and eradication of racial prejudices were the ultimate ideals of the movement. It seems to me that cultivation of "international heart" requires one to actively promote ethno-linguistic adaptation in the Esperanto community.

"Adaptation" means adjustment by the communicators. In our daily contacts with others, we make adjustments all the time. For example, in conversation, we adjust our perception on the basis of the other speaker's sex, voice quality, accent, dialect, or foreign language background. In our experience, we find that our ability to adjust perception is much higher than our ability to adjust speech production. In the Esperanto context, the speech community in terms of its aspiration is "non-ethnic" and "non-territorial" (Wood 1979). On the other hand, if one takes into consideration the language reality, the differences are as important as the unity for the future development of the Esperanto community. Wells (1978) lists various peculiarities of spoken Esperanto; Wood (forthcoming) gives a lengthy account of historical evolution of pronunciation; Sherwood (forthcoming b) also deals with variation of Esperanto; Chen (1981) gives a short but lively account of language, life, and Esperanto; I have just discussed the Chinese linguistic and cultural elements in the Esperanto used in China. These findings all point out that, in terms of cultural backgrounds and actual use, the Esperanto community is full of ethnic and territorial differences.

The differences manifested in phonology, syntax, semantics, discourse, or general style, can be accepted as norms for the following reasons: (1) Variation enriches the language. History has shown that the vocabulary of 904 roots about a century ago has changed to accommodate scientific innovations and other elements. Without infusion of new elements from other languages and cultures, Esperanto would have been one of the many "closet" languages that were invented and left alone to die. (2) Acceptance of differences among speakers allows the language to become that of the masses rather than that of a small elite. In this way, the users can exercise their creativity in proper contexts and feel that they "own" the language. Sherwood (forthcoming b) also expresses this point clearly in the following words: "In any case, the continued strength of the Esperanto movement in Asia is likely to insure that the needs of non-European speakers will not be neglected, and that Asians will contribute to the evolution of a global style."

Adaptation requires that Esperanto users make efforts toward understanding other cultures. Notice that we do not use the word "tolerance". "Tolerance" is a negative concept that is not compatible with the ideals of mutual understanding. Mutual understanding should also include understanding of native language influences on Esperanto. When an Esperanto speaker with a European language background understands that Standard Chinese does not have voiced stops, he is able to quickly adapt to the Esperanto spoken by the Chinese and diligently make perceptual adjustments on the basis of the context. As another example, when *mil-kaj dek milfoje* 'thousand and ten-thousand times' is used for 'hundreds of thousands of times', Europeans should understand that the Chinese language background calls for such an expression and not that a mistake was made. Since Esperanto speakers, by nature of the movement, are often aware of linguistic differences, they can readily understand that understanding of linguistic differences is one of the processes to achieve the goals of the movement. It is in this frame of reference that studies of native language influences on Esperanto become most meaningful.

NOTES

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PASSIVE IN PERSIAN*

Mohammad Dabir-Moghaddam

In this paper I will be concerned with the question of passive in Persian. The existence of passive construction in Persian has been a controversial issue in the transformational treatments of Persian. A group of scholars have postulated the existence of 'passive' in Persian, while at least one linguist has called this construction 'inchoative.' In this paper I discuss the 'passive' and the 'inchoative' approaches to the notion 'passive voice' in Persian and finally suggest that in addition to the category of inchoative constructions there is a syntactic category of passive in Persian. I will show that a definable subset of passive constructions in Persian may optionally undergo another syntactic process that produces a surface structure which is potentially ambiguous between an inchoative and a passive interpretation. I will claim that the transformational rule of passive in Persian is a governed rule in the sense that it applies to a semantically definable class of verbs.

1. Previous Approaches to Passive in Persian

On the question of passive construction in Persian, transformational grammarians take two distinct positions. Marashi (cf. Marashi, 1970:18), Palmer (cf. Palmer, 1971:98), Sheintuch (cf. Sheintuch, 1973:54), Soheili-Isfahani (cf. Soheili-Isfahani, 1976:164) and Hajati (cf. Hajati, 1977:17) postulate (with very little discussion) a passive rule in Persian. In his discussion of S-Raising, Soheili-Isfahani utilizes an argument based on passivization and suggests the following processes to be involved in the derivation of a passive from its active counterpart. (The items in square brackets are mine.)

- (1) . . . The direct object is promoted to the subject position, and the [underlying] subject is generally deleted in Persian. As an illustration, consider the following active sentence in (67) [i.e., (2) below] and its passive form in (68) [i.e., (3) below]:

Soheili-Isfahani (1976:164)

- (2) irāniān ferdowsi- rā bozorg-tarin šā'er-E hemāsi mi-šēmār-and.
 Iranians Ferdowsi+obj. greatest poet epic reckon+subj.
 'Iranians reckon Ferdowsi as the greatest epic poet.'

- (3) ferdowsi bozorg-tarin šā'er-E hemāsi šemorde mi-šav-ad.
 Ferdowsi greatest poet epic reckon become+subj.
 'Ferdowsi is reckoned as the greatest epic poet.'

The second position is illustrated by Moyne (1974) which claims that there is no passive construction in Modern Persian, all instances which have been referred to as 'passive' are in fact 'inchoative.' Before I discuss this position I would like, for the sake of convenience of discussion, to refer to the first approach as the 'passive' approach and to the second approach as the 'inchoative' approach.

Moyne (1974) addresses the question of passivization in Persian and on the basis of, among others, a historical observation and the claim that the 'by-phrase' in Persian has an instrumental sense draws the following conclusion:

- (4) In conclusion the facts presented in this paper suggest that there is no active-passive opposition in Persian. . . , but there are certain inchoative structures in šodan.

Moyne (1974:265)

Moyne (1974) can be criticized from several different perspectives. In view of limitation of space, I will discuss only two aspects of the paper: 'historical' and 'empirical.' First, a note on the 'historical' aspect of Moyne (1974).

1.1 Historical

Moyne makes the following claim with respect to a historical development in the passive construction in the Persian language:

- (5) Viewed through the historical development, the lack of passive in Persian should not come as a surprise. In Old Persian, lexical or morphological passive forms were common. Specially, the auxiliary kart- was passive and took an oblique subject (cf. Meillet, 1911). In Middle Persian (Pahlavi), we can trace the demise of the Middle and the Passive as lexical processes. In particular, krt- (=kart->kard-) becomes active and it is passed into New Persian as an active verb.

ibid:250

Although what Moyne claims in the above quotation is true, it is only part of the truth. Evidence from four historical stages in the history of the Persian language--i.e., Old Persian (6th c.B.C. - 3rd c.B.C.), Middle Persian (Pahlavi) (224-651 A.D.), Early Modern Persian (864-1005 A.D.), and Modern Persian--suggest the following. In Old Persian there existed two different ways of passive formation--(1) 'inflectional,' i.e., addition of the suffix -ya- to the active form (Kent, 1950:73(#220)-74,88(#275)), and (b) 'periphrastic,' i.e., a combination of past participle and 'be' or just

the past participle without 'be' (Kent, 1950:88(#275)). Similarly, in Middle Persian (Pahlavi), there existed both a category of inflectional passive formed by the morpheme -īh(-yh-) which appears following the present stem (Heston, 1976:161), and periphrastic passive formed through the combination of past participle with 'be' (Heston, 1976:177) as well as past participle without 'be' (Brunner, 1971:240).

Thus, we see a trace of the Old Persian passive morpheme -ya- with the change of a > h in Pahlavi. The fact that the Old Persian -ya- morpheme appears without any phonetic change in Sogdian (cf. Heston, 1976:162)--an eastern Middle Iranian language, as opposed to Pahlavi which is a western Middle Iranian language--further confirms the postulation of -ya- as the historical antecedent of the Pahlavi -īh(-yh-). In Early Modern Persian, there is no clearly identifiable passive morpheme (Heston, 1976:161) which means that in the process of historical development this morpheme either has lost its function and productivity or simply that it has been lost because of sound change. This is not a terribly surprising phenomenon for the following two reasons: First, in Pahlavi we see a fairly 'restricted' use of verbs with this passive suffix ((Nyberg, 1974:282; Heston, 1976:161), however, Brunner takes the position that they are 'used freely' (Brunner, 1971:239)) and it is, in fact, the periphrastic class which constitutes a large category (Brunner, 1971:238). Second, the spread of the periphrastic category as the only category for passivization seems to be part of a general historical development between the Old and Modern Persian in which there is a tendency away from agglutination toward lexicalization/isolation. As a result, there is no passive suffix in Modern Persian.

With regard to the periphrastic passive construction, two very interesting historical developments can be observed. The first of these is the reinterpretation of the Old and Middle Persian periphrastic passives as active¹ constructions in Early Modern Persian (Brunner, 1971:246). Although this is clearly attested only in Early Modern Persian, its origin can be traced back to Middle Persian (ibid.). This process is, more or less, what Moyné refers to in his historical comment quoted earlier. What Moyné does not mention, however, is the second historical development that takes place in Early Modern Persian. This historical development is the *emergence* of the single periphrastic category of passive, which contains the auxiliary verb *šudan* 'to become; to go' in Early Modern Persian and the continuation of that, in the form of *šodan* 'to become', in Modern Persian. In Early Modern Persian texts (just as is the case in Modern Persian), there are two patterns of passive formation: (1) the combination of a *past participle* with a form of *šdn* 'become', and (2) the combination of an *adjective* with *šdn* (Heston, 1976:180-182). The following are examples of the first pattern in different tenses, e.g., past, past perfect, and present (the examples are given in their transliteration form):

- (6) w 'z hr dw sp'h bsy'r kšth šd.
'and many from both armies were killed.'
- (7) w 'yn zryr br dst 'w kšth šdh bwd.
'and this Zarir had been killed by his hand.'

- (8) t' d'nsth šwž.

'So that (the version of each group) will be known.'

Heston (1976:181)

The following sentence exemplifies the second pattern of the passive² formation in Early Modern Persian:

- (9) zn'n mšr 'zyn k'r "g'h šdnd.

'The women of Egypt became aware of this matter.'

ibid:182

There are at least three pieces of evidence for the claim made above about the periphrastic category of passive containing the auxiliary verb *šudan* in Early Modern Persian being an innovation. First, in Middle Persian (Pahlavi), the verb *šudan* serves only as an intransitive 'motion' verb (Heston, 1976:183) in both inflectional and periphrastic tenses. The following examples illustrate this point:

(10) Inflectional Tense

Present-future	šawēd	'He goes, is going, will go'
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Periphrastic Tenses

Present-perfect	šud ēstēd	'He has gone.'
Perfect	šud (hēm)	'He went.'
Plu-perfect	{ šud būd (hēm) šud ēstād (hēm) }	'He had gone.'

Brunner (1971:239)

Second, the fact that the verb *šudan* in Pahlavi neither occurs with participles of transitive verbs nor does it occur with adjectives (Heston, 1976:183) further supports the fact that, in Middle Persian this verb is always a verb of motion and not a passive auxiliary. This means that in Early Modern Persian the Middle Persian intransitive motion verb *šudan* 'to go' acquired a 'specialized' usage as a passive auxiliary. Third, in Early Modern Persian, there are instances where *šudan* still carries its earlier function as an intransitive motion verb, e.g.,

- (11) bh krm'n šd.

'(he) went to Kerman'

Heston (1976:232)

Thus, the double function of *šudan* (as a verb of motion and as a passive auxiliary) suggests that Early Modern Persian mirrors a stage in which we

can observe the beginning of a syntactic innovation. I would like to claim that in Modern Standard Persian, this syntactic innovation is completed and *šodan* functions *only* as an auxiliary verb.

Therefore, the conclusion that can be drawn from the above discussion is that although, as Moyne has claimed, there was a process by which Old and Middle Persian passive constructions were reinterpreted as active (in Early Modern Persian) and were passed as such into Modern Persian, yet *at the same time* (i.e., in Early Modern Persian) a new category of passive emerged as a consequence of a change in the function of an intransitive motion verb into an auxiliary verb. Thus, as I pointed out earlier, Moyne's 'historical' comment is only part of the truth; in fact, the other part of the truth that I discussed above constitutes an argument against Moyne's conclusion as to the non-existence of a passive construction in Modern Persian. In the following paragraphs I discuss the 'empirical' aspect of Moyne (1974).

1.2 Empirical

Empirically speaking, I do not share many of the intuitive judgments expressed in Moyne's paper. Thus, I cannot accept some of the conclusions that were drawn on the basis of those intuitive judgements. I have asked for intuitive judgement of some native speakers of Persian with respect to the data which are unacceptable to me and all of these are in agreement with my judgement.

For instance, the following discussion by Moyne which leads to the claim that the expressed logical subjects in the 'so-called' passive constructions are instrumental--i.e., that they have 'the instrumental sense' (Moyne, 1974:252)--is based on intuitive judgements that I do not share.

- (12) As a general rule the so-called passive constructions in Persian has no agent indicated. . . There are, however, some instances in modern usage where the so-called passive constructions are used with an agent indicated.

Moyne (1974:250)

In order to support that claim, Moyne provides the following examples. (The numbers in the right side refer to the numbers used in the original paper):

- (13) a. az dast-e ali košta šod (3a)
from hand-of Ali killed became
'he was killed by Ali.'

- b. emšab āvāz tavassot-e bānu Parvāna xanda (3b)
tonight song through madam P. sung

mišavad
will-become

'tonight songs will be sung by Miss Parvana.'

- c. ali bevasile-e mamur-e dādgostary dastgir (3c)
 Ali by-means-of agent-of justice arrested

šod
 became

'Ali was arrested by an agent of the Justice Department.'

ibid (250-251)

He further adds that

- (14) Notice that the examples in (3) [e.g., (13) above] are awkward and relatively new in the language. . . . These instrumental constructions do not clearly specify an agent for the action. For example (3a) [i.e., (13a) above] means that Ali was instrumental in the killing of someone, but it does not necessarily mean that he personally performed the killing.

ibid (251)

Basically, I agree with Moyne that in passive sentences the agent remains generally unexpressed. However, I postpone any further elaboration of this point until the last section in this paper. In this section I will only concentrate on instances mentioned by Moyne where the agent is indicated. My objection to Moyne's claim that the 'by phrase' in Persian in instrumental is based upon my disagreement with his data in (13) above as well as his interpretation of that data. As far as my intuition is concerned, sentence (13a) is totally unacceptable and should be preceded by an asterisk. However, there is a sentence (15) that resembles (13a) which is grammatical:

- (15) be dast-e ali košte šod - φ
 at hand-of Ali killed became-subj.

'He was killed by Ali.'

If that is the case, then the phrase *be dast-e ali* 'by Ali' in the above example necessarily means that Ali personally performed the act of killing and that he is, in fact, the agent of the action. Sentences (13b) and (13c) are both well-formed, but in none of these sentences I get any instrumental interpretation as suggested by Moyne. In both of these sentences, the '*tavassot-E*' and '*bevasile-E* phrase' are stylistic variants of each other and both phrases have only the agentive connotation. The most widely used equivalent of the English 'by phrase' is the '*tavassot-E* phrase' in Persian and all of the examples in (13) can be equally expressed with '*tavassot-E* phrase':

- (16) a. (u) tavassot-E ali košt - e šod - φ
 he/she by Ali killed-part. became-subj.

'He/she was killed by Ali.'

- b. emšab āvāz tavassot-E bānu parvāne xānd- e
tonight song by madam P. sang-part.

mi - šav - ad.
IMPF.-become-subj.

'Tonight songs will be sung by Miss Parvane.'

- c. ali tavassot-E mamur-E dādgostary dastgir šod - φ
Ali by agent justice dep. arrested became-subj.

'Ali was arrested by an agent of the Justice Department.'

Support for my position, as opposed to Moyne's position, that in the 'so-called' passive constructions the preposition '*tavassot-E*' marks an agentive phrase comes from at least two different sources.³ One piece of evidence is derived from 'semantic contradiction' which is produced should each of the passive sentence in (16) be conjoined with its corresponding active counterpart in the negative. If the passive sentences in (16) were indeed 'instrumental constructions,' as Moyne would like to claim, then such 'semantic contradiction' would not be expected. In that case the first conjoined sentence would simply introduce the underlying subject as an instrument in the fulfillment of the action expressed by the verb and the second conjoined sentence would reinforce that instrumental sense by denying the agentive role of the underlying subject. The following non-sentences exemplify the semantic contradiction just alluded to:

- (17) a. *(u) tavassot-E ali košt - e šod - φ { va }
he by Ali killed-part. became-subj. { vali }
{ and }
{ but }

ali u-rā na- košt - φ
Ali he-DO not-killed-subj.

''He was killed by Ali { and } Ali did not kill him.'
{ but }

- b. * emšab āvāz tavassot-E bānu parvāne xānd- e
tonight song by madam P. sang-part.

mi - šav - ad { va }
will-become-subj. { vali } emšab bānu parvāne
{ and } tonight madam P.
{ but }

āvāz ne- mi - xān - ad.
song not-will-sing-subj.

''Tonight songs will be sung by Miss Parvane { and } Miss
Parvane will not sing songs tonight.' { but }

c. *ali tavassot-E mamur-E dādgostary dastgir
 Ali by agent Justice Dep. arrested

šod - ϕ { va }
 became-subj. { vali } mamur-E dādgostary
 { and } agent Justice Dep.
 { but }

ali-rā dastgir na-kard- ϕ
 Ali-DO arrested not-made-subj.

*'Ali was arrested by an agent of the Justice Department
 { and }
 { but } an agent of Justice Department did not arrest Ali.'

The second piece of evidence supporting my position comes from the 'functional distribution' of the prepositions *bā* 'with', *bevasile-E* 'by; by means of', and *tavassot-E* 'by' in Persian. In an active sentence such as (19a) below all of the above three prepositions can precede the instrumental noun phrase, however, there is a left to right 'hierarchy of preference' with respect to the occurrence of these prepositions. The 'hierarchy of preference' is expressed in (18).

(18) Hierarchy of Preference

bā is the most preferred preposition to occur with an instrumental nominal, *tavassot-E* is the least preferred preposition to occur with an instrumental nominal, and *bevasile-E* stands between these two extremes.

(19) a. qātel maqtul-rā bā / bevasile-E/tavassot-E čāqu
 murderer victim-DO with/by means of/by knife-

košt - ϕ
 killed-subj.

Lit. 'The murderer killed the victim with/by means of/by a knife.'

In the passive counterpart of the above active sentence where two occurrences of the above prepositions are expected the 'functional distribution' of the prepositions manifests itself. As the following examples clearly show the co-occurrence of *bā* and *bevasile-E* before the instrumental NP and *tavassot-E* before the logical subject is permitted (cf., 19(b)), whereas the co-occurrence of *tavassot-E* before the instrumental NP and *bevasile-E* before the underlying subject is not allowed (cf. (19c)). (19c) also shows that the co-occurrence of *bā* before the instrumental NP and *bevasile-E* before the underlying subject is allowed. The examples in (19b) and (19c) also indicate that the two occurrences of *bevasile-E* or *tavassot-E* are not possible.

- (19) b. maqtul bā / bevasile-E/*tavassot-E čāqu tavassot-E
 victim with/by means of/ by knife by

qātel košt - e šod - φ
 murderer killed-part. became-subj.

Lit. 'The victim was killed by the murderer with/by means of/*by a knife.'

- c. maqtul bā/*bevasile-E/*tavassot-E čāqu bevasile-E qātel
 košt-e šod-φ

Lit. 'The victim was killed by the murderer with/*by means of/*by a knife.'

Before I proceed, I would like to point out that the ungrammaticality of (19c) in which the occurrence of *tavassot-E* precedes that of *bevasile-E*, and the grammaticality of (19b) in which the occurrence of *bevasile-E* comes before that of *tavassot-E* is a natural consequence of the hierarchy of preference stipulated above. This, I believe, further strengthens the postulation of that hierarchy. Now, notice further that in the passive counterparts of an active sentence which does not contain an instrumental NP, the occurrence of the preposition *bā* before the underlying subject is not permitted whereas *bevasile-E* and *tavassot-E* can equally appear before it. The following examples in which the (e) member is the passive form of (d) are illustrative:

- (19) d. qātel maqtul-rā košt - φ
 murderer victim-DO killed-subj.

'The murder killed the victim.'

- e. maqtul *bā/bevasile-E/tavassot-E qātel košt-e šod-φ
 'The victim was killed *with(instrumental)/by the murderer.'

If the observations made above are correct, then an analysis which is capable of accounting for the native speaker's intuition with respect to the 'hierarchy of preference' alluded to above will be in position to automatically predict the distributional differences observed in (19a) - (19e). If an analysis claims that the 'by phrase' in Persian is instrumental (i.e., that it has instrumental sense) and is prepared to go beyond the simple description (i.e., listing) of the distributions observed in the above data, then it has to claim that *bā* only marks inanimate instrumental NPs whereas *tavassot-E* primarily marks animate instrumental NPs and *bevasile-E* shares some of the properties of the former and some of the properties of the latter instrumental prepositions. This characterization provides a justification based on the feature of animacy for our 'hierarchy of preference.' Notice that although the above characterization is a step beyond mere listing of the observed distributions, yet it is a step away from explaining the phenomenon. An explanation of the phenomenon is obtained only when the facts that *tavassot-E* primarily marks those NPs which in underlying representation are agents (e.g., consider the grammaticality of (19b) and (19e))

rather than instruments (e.g., the ungrammaticality of (19b) and (19c)), whereas *bā* marks those NPs which in underlying representation are always 'instrumental' (e.g., (19a), (19b), and (19c) and the ungrammaticality of (19e)) and never 'agentive' (cf. (19f) below which is anomalous) are considered as well.

- (19) f. *čāqu maqtul-rā košt - φ
 knife victim-DO killed-subj.
 'The knife killed the victim.'

The general explanation which takes into account the two facts just mentioned can be suggested along the following lines: The *only* function of *bā* is to mark instrumental NPs, whereas the *primary* (i.e., major) function of *tavassot-E* is to mark agentive phrases, however, *tavassot-E* shares a small fraction of the function of *bā* as well (cf., (19a)). In this analysis, the preposition *bevasile-E* is claimed to share part of the 'functional distribution' of *bā* (cf., (19a) and (19b)) and part of the 'functional distribution' of *tavassot-E* (cf. (19c) and (19e) as well as (19g), which shows the 'semantic contradiction' discussed earlier). In other words, the semantic domain of *bevasile-E* intersects with part of the semantic domain of *bā* and part of the semantic domain of *tavassot-E*.

- (19) g. *maqtul bevasile-E qātel košt-e šod - φ { va
 victim by murderer killed became-subj. { vali }
 { and }
 { but }
 qatel maqtul-rā na- košt - φ
 murderer victim-DO not-killed-subj.
 *'The victim was killed by the murderer { and } the murderer
 did not kill the victim.' { but }

The discussion of the above functional distribution of prepositions (1) accounts for the native speaker's intuition with respect to the 'hierarchy of preference' and (2) predicts the forms observed in (19a) - (19e).

These two pieces of evidence suggest that the characterization of the 'by-phrase' in Persian as instrumental is not valid.

Before I proceed, the discussion presented hitherto may be summarized as follows:

- (20) a. Evidence based on the diachronic syntax of Persian suggest that since Early Modern Persian the Middle Persian intransitive motion verb *šudan* 'go' acquired a specialized usage as a passive auxiliary--i.e., *šodan* 'become'.
 b. Evidence based on 'semantic contradiction' and 'functional distribution' related to the *tavassot-E* NP 'by-phrase' suggest that the preposition *tavassot-E* marks an agentive phrase in Persian.

In the following section (1) I will attempt to show why passive in Persian has been called inchoative, and (2) I will present my analysis of passive in Persian.

2. A New Proposal for the Treatment of Passive in Persian

As a first step toward presenting my account of passive/inchoative in Persian, I consider it essential to try to understand the factors which were responsible for the emergence of two different approaches (passive versus inchoative) with regard to the syntactic construction under investigation. A comparison of the following English sentences with their corresponding Persian counterparts is helpful:

- (21) a. The water is cool.
 b. The water cooled.
 c. The water became cool.
 d. *The water became cool by John.
 e. John cooled the water.
 f. The water was cooled (by John).
- (22) a. āb sard ast- φ
 water cool is-subj.
 'The water is cool.'
- b. āb sard šod - φ
 became-subj.
 'The water cooled/became cool.'
- c. āb sard šod-φ
- d. āb tavassot-E mahmud sard šod - φ
 water by M. cool became-subj.
 '*The water became cool by Mahmud.'
- e. mahmud āb -rā sard kard- φ
 M. water-DO cool made-subj.
 'M. cooled the water.'
- f. āb (tavassot-E mahmud) sard šod - φ
 water by M. cool became-subj.
 'The water was cooled (by Mahmud).'

A comparison of the (b) and (c) sentences in the English paradigm with the (b) and (c) sentences in the Persian paradigm clearly indicates that what is traditionally called an inchoative construction (Lakoff, 1970:32) in English is expressed by the auxiliary *šodan* 'to become' in Persian. Now if we compare the English sentence (f) with its corresponding sentence in Persian, we notice that the Persian passive again contains the auxiliary *šodan* 'to become.' Thus, the occurrence of a single auxiliary in constructions which correspond to English 'inchoative' and 'passive' constructions is one major factor for the existence of a 'passive' and an 'inchoative' approach for Persian. Notice that the overlap between the inchoative and passive auxiliary in Persian explains the well-formedness of (d), and the

disparity of the two constructions in English justifies the ill-formedness of the English (d). A comparison of the (f) sentences in the two paradigms reveals that the deletion of the 'by-phrase' in the Persian passive sentence (which is generally favored) produces a surface structure which is identical to the inchoative sentence (b) whereas obviously this is not the case in English. Thus, after the deletion of the 'by-phrase' in item (f) of the Persian paradigm the sentence would be ambiguous/non-committal between a reading in which 'the water became cool on its own accord' (i.e., an inchoative reading), e.g., items (b) and (c), and a reading in which 'the water was cooled as a result of some deliberate action by someone' (i.e., a passive reading), e.g., item (f). Thus, the omission of the 'by-phrase' in sentences such as (22f) in Persian, which is generally favored, creates an ambiguous surface structure which is another factor responsible for the existence of a 'passive' and an 'inchoative' approach. (For further illustration of the ambiguity see pages 15-18).

The analysis that I will argue for in the following paragraphs suggests that there is a syntactic category of passive in Persian independent of the inchoative constructions. Furthermore, I will claim that the application of the passive rule to the structures underlying active sentences always produces unambiguous passive constructions. I will show that a definable subset of passive sentences such as item (22f) in which after the deletion of the 'by-phrase' we arrive at ambiguous surface structures in fact represents the output of another syntactic process which may apply to the output of the passive transformation. Finally, I will study some verbs which do not allow passivization to apply to them. In light of this observation, I will claim that the rule of passive in Persian is a governed rule. I begin this discussion with what I will eventually call 'unambiguous/transparent passive constructions.'

In addition to the 'historical' argument that I presented earlier which supports the emergence of a new periphrastic category of passive since Early Modern Persian, there is other evidence which strengthens the postulation of passive in Modern Persian. One piece of evidence comes from the characteristics reflected by the active sentences and their passive counterparts in Persian which are in line with the characteristics of the 'universals of passivization' as stipulated in the proposals of Perlmutter and Postal (1977). This proposal suggests that a universal characterization of passivization in terms of 'word order', 'case', or 'verbal morphology' is not possible; instead an appeal to such largely traditional relational notions as 'subject of' and 'direct object of' paves the way for the expression of two universals which underly the process of passivization. The two universals that they propose are the following:

- (23) i. A direct object of an active clause is the (superficial) subject of the 'corresponding' passive.

Perlmutter and Postal (1977:399)

- ii. The subject of a monostratal active sentence is a *chômeur* in the second stratum of the corresponding bistratal passive.

ibid (1977:409)

Perlmutter and Postal further claim that some of the consequences of universal (ii) are, in turn, universal and some of the consequences of it are language-particular. (iii) and (iv) below reflect a universal and a language-dependent consequence of (ii), respectively:

- iii. In the absence of another rule permitting some further nominal to be direct object of the clause, a passive clause is a (superficially) intransitive clause.'

ibid (1977:399)

- iv. The marking of the passive *chômeur* totally depends on individual languages. Some mark it with preposition (e.g., English), some with postpositions (e.g., Turkish (cf. Aissen, 1974b), and Eskimo with instrumental postposition (cf., Perlmutter and Postal (1977:397), some with case (instrumental in Russian, and ergative in Basque (cf., Perlmutter and Postal, 1977:397-398), and some not at all (e.g., Malagasy (cf., Perlmutter and Postal, 1977:395)).

Keeping the above universals and language-dependent properties of passivization in mind, in the following paragraph I demonstrate that the (a) and their corresponding (b) sentences in the Persian data below reflect these properties and from that I conclude that there is no reason why the members of each of these and similar pairs should not be called 'active' and 'passive' counterparts.

- (24) a. ma?mur- ān -E sāvāk yek ostād-E dānešgāh -rā
agent-plu. SAVAK a professor university-DO

košt -and. .
killed-subj.

'The SAVAK agents killed a university professor.'

- b. yek ostād-E dānešgāh (tavassot-E ma?mur-ān-E
a professor university by agent

sāvāk) košt - e šod - φ
SAVAK killed-part. became-subj.

'A university professor was killed (by the SAVAK agents).'

- (25) a. mardom nāme -?-i-rā be re?is jomhur nevešt-and.
people letter- a -DO to head republic wrote -subj.

'The people wrote a letter to the president.'

- b. nāme-?-i (tavassot-E mardom) be re?is jomhur
letter-a by people to head republic

nevešt- e šod - ϕ
wrote -part. became-subj.

'A letter was written to the president (by the people).'

- (26) a. re?is-E dānešgāh darxāst-E ostād - ān -rā
head university request professor-plu.-DO

paziroft- ϕ
accepted-subj.

'The head of the university accepted the request of the professors.'

- b. darxāst-E ostād - ān (tavassot-E re?is-E dānešgāh)
request professor-plu. by head university

paziroft- e šod - ϕ
accepted-part. became-subj.

'The request of the professors was accepted (by the head of the university).'

- (27) a. ma?mur- ān mottaham-rā be dādgāh āvard -and.
agent -plu. accused -DO to court brought-subj.

'The agents brought the accused person to the court.'

- b. mottaham (tavassot-E ma?mur- ān) be dādgāh āvard - e
accused by agent-plu. to court brought-part.

šod - ϕ
became-subj.

'The accused person was brought to the court (by the agents).'

The (a) member of each of the above examples shows three basic features of Persian syntax. First, the direct object carries the accusative case marker *-rā*, and the subject carries the nominative *- ϕ* case marking. Second, the 'person' and 'number' of the subject is always copy-marked on the verb. Third, the basic word order of Persian is SOV. A comparison of the (a) and (b) members in each pair clearly indicates that the direct object in the (a) sentence by losing its accusative case marker *-rā*, acquiring the nominative *- ϕ* marking, being copy-marked on the verb, and finally by occurring in the initial position of the sentence assumes the role of (superficial) subject of the corresponding (b) sentence. (Notice that in sentences (24a), (25a), and (27a) the subject is plural, hence the verb bears the plural subject marking *-and* 'they'; whereas in the corresponding (b) sentences, the superficial subject, which is the ex-direct object, is singular hence the verb bears the singular subject marking *- ϕ* 'he/she/it'. In sentences (26), however, the subject of both the (a) and (b) members are singular, hence the verb bears the *- ϕ* ending in both cases.) This promotion of the direct

object of the (a) sentences as the subject of the corresponding (b) sentences is exactly the phenomenon that universal (i) refers to. Incidentally, the fact that the subject in all (a) sentences above, bears the '1-relation' (to use the terminology of the Relational Grammar), whereas the direct object of the (a) sentences bears the '1-relation' in the corresponding (b) sentences suggests that the subject of the (a) sentences is a *chômeur* in the (b) sentences (cf. Perlmutter and Postal, 1977:408). This is exactly what is stated in universal (ii). The surface structure of all of the (b) sentences can be represented as $s[NP \text{ (by-phrase) } V]$ which is the surface representation of an intransitive clause. This situation is thoroughly compatible with the assumption of universal (iii). Finally, as it should be clear by now, the passive *chômeur* in Persian (when it appears on surface) will be marked with a preposition (cf. iv). To conclude, the complete compatibility of the Persian data with the assumptions of universals (i) and (ii) and the consequences of those universals suggests that, contrary to the claims of the 'inchoative' approach (cf. item (4), for instance), the grammatical category of passive should be postulated as part of the grammar of the Persian language.

Earlier, I claimed in relation to items in (22) that after the deletion of the 'by-phrase' the passive sentence, e.g., (22f) (which structurally consists of an *adjective* + *šodan*) would be ambiguous/noncommittal between an inchoative and a passive reading. In what follows, I intend to illustrate that all of the (b) sentences that were mentioned in the previous paragraph (whose verb morphology consists of a 'Past Participle + *šodan*'), with the by-phrase omitted, indicate that the proposition took place as a result of some deliberate action by someone else. Hence, I conclude that these constructions are definitely 'passive' without having any overlap with the 'inchoative' constructions.

The following test is useful to show that the (24b) - (27b) sentences express propositions which took place as a consequence of some deliberate action by someone else. In all of these and similar sentences, in the position where otherwise the 'by-phrase' might occur, if we insert the adverbial phrase *xod be xod* 'gratuitously' on his/her/its own accord' the resulting construction will be contradictory:

- (24') b. *yek ostād-E dānešgāh xod be xod košt - e
a professor university self with self killed-part.

šod - φ
became-subj.

Lit. *'A university professor became killed gratuitously.'

- (25') b. *nāme?-i xod be xod be re?is jomhur
letter-a self with self to head republic

nevešt- e šod - φ
wrote -part. became-subj.

Lit. *'A letter became written to the president gratuitously.'

- (26') b. *darxāst-E ostād-ān xod be xod⁴ paziroft- e
request professors self with self accepted-part.

šod - φ
became-subj.

Lit. *'The request of the professors became accepted gratuitously.'

- (27') b. *mottaham xod be xod be dādgāh āvard - e
accused self with self to court brought-part.

šod - φ
became-subj.

Lit. *'The accused person became brought to the court gratuitously.'

The contradiction in the above sentences arises because all of those constructions necessarily imply an agent, whereas the presence of the adverbial phrase *xod be xod* cancels that implication. Therefore, it could appropriately be claimed that in sentences (24b) - (27b) and similar sentences (with the *by* phrase omitted), where the verb morphology consists of a 'Past participle + šodan', the only possible reading is that there is an agent implied. I am going to refer to these and all sentences with similar characteristics as 'unambiguous/transparent passives.' I claim that the structure underlying item (a) and the structure underlying its corresponding (b) member in sentences (24) - (27) and similar sentences are related to each other by an optional transformational rule of passive. The transformational rule of passivization (a) promotes the direct object of the active sentence into the superficial subject position, (b) demotes the underlying subject of the active clause to a position after the derived subject, preceded by the inserted preposition *tavassot-E* 'by', and (c) changes the verb of the active sentence into its past participial form and inserts an appropriate form of the passive auxiliary *šodan* (depending on the tense of the sentence and the number and person of the derived subject) after the past participle. This statement of passive formation (taking into consideration a wider range of data than those presented here) can be formalized as follows:

(28) Passive Formation Rule (Optional)

SD: X-NP-Y- NP⁵ -Z-V
[+acc.]
1 2 3 4 5 6

SC: 1, 3, 4, (5), tavassot-E+2, (5), 6 + šodan
[-acc.] [+Past Part.]

Condition: (i) 2, 4, and 6 are clausemate.⁶

(ii) 5 can appear either before or after the 'by-phrase.'

On the other hand, the auxiliary causative⁷ constructions in Persian exemplified in the (a) members of sentences (29) - (31) may be related to

three different *šodan* 'become' constructions as shown by items (b) - (d). Of these three constructions, items (b) and (d) are quite well-known to us since they illustrate inchoative and passive counterparts of items (a), respectively. With respect to items (c), I claim that these sentences are derived from their corresponding items (d) by a syntactic process that optionally deletes the *kard-e* part of the participial form. (I will return to the deletion of *kard-e* in the next paragraph.) It may be noted that the omission of the 'by-phrase' in the constructions like items (c) makes these constructions identical to the inchoative sentences in items (b) whereas the deletion of the 'by-phrase' in the constructions in items (d) does not produce any potentially ambiguous grammatical structure. Thus, after the 'by-phrase' deletion in sentences (29c) - (31c) and similar sentences where the verb morphology consists of an 'adjective + *šodan*' we expect to arrive at potential ambiguity between an 'inchoative' reading and a 'passive' reading. These constructions may be called 'ambiguous/opaque passives.'

- (29) a. nasrin bomb-rā monfaĵer kard- φ
Nasrin bomb-DO exploded made-subj.
'Nasrin exploded the bomb.'
- b. bomb (xod be xod) monfaĵer šod - φ
bomb self with self exploded became-subj.
Lit. 'The bomb exploded (gratuitously).'
- c. bomb (tavassot-E nasrin) monfaĵer šod-φ
by Nasrin
Lit. 'The bomb exploded (by Nasrin).'
- d. bomb (tavassot-E nasrin) monfaĵer kard- e šod - φ
made-part. became-subj.
'The bomb was exploded (by Nasrin).'
- (30) a. hamsāye - hā māšin-rā paŋčar kard-and
neighbor-plu. car -DO flat made-subj.
Lit. 'The neighbors made the car's tire flat.'
- b. māšin (xod be xod) paŋčar šod - φ
car self with self flat became-subj.
Lit. 'The car's tire became flat (gratuitously).'
- c. māšin (tavassot-E hamsāye - hā) paŋčar šod-φ
by neighbor-plu.
Lit. 'The car's tire became flat (by the neighbors).'
- d. māšin (tavassot-E hamsāye-hā) paŋčar kard- e
made-part.
šod - φ
became-subj.
'The car was made flat (by the neighbors).'

- (31) a. nasrin panjere-rā bāz kard- φ
Nasrin window -DO open made-subj.
'Nasrin opened the window.'
- b. panjere (xod be xod) bāz šod - φ
self with self open became-subj.
Lit. 'The window opened (gratuitously).'
- c. panjere (tavassot-E nasrin) bāz šod-φ
by Nasrin
Lit. 'The window opened (by Nasrin).'
- d. panjere (tavassot-E nasrin) bāz kard- e šod - φ
made-part. became-subj.
'The window was opened (by Nasrin).'

It may be noted that if the claim that items (c) in sentences (29) - (31) are derived from their corresponding items (d) by a syntactic process of *kard-e* deletion is correct then it would predict that corresponding to item (f) of sentence (22), repeated in (32a) below, in which the omission of the 'by-phrase' would produce a potential ambiguous surface there is an unambiguous/transparent passive construction. Item (32b) supports this observation.

- (32) a. āb (tavassot-E mahmud) sard šod - φ
water by Mahmud cool became-subj.
'The water was cooled (by Mahmud).'
- b. āb (tavassot-E mahmud) sard kard- e šod - φ
water by Mahmud cool made-part. became-subj.
'The water was made cool (by Mahmud).'

That sentences (29d) - (31d) as well as item (32b) with the 'by-phrase' omitted where the verb morphology consists of a 'past participle + šodan' are unambiguous/transparent passives with an agent implied is shown by the contradictory nature of items (29') - (32') in which the adverbial phrase *xod be xod* 'gratuitously; on his/her/its own accord' occurs.

- (29') *bomb xod be xod monfaʔer kard- e šod - φ
bomb self with self exploded made-part. became-subj.
'*The bomb was exploded gratuitously.'
- (30') *mašin xod be xod pančar kard- e šod - φ
car self with self flat made-part. became-subj.
'*The car was made flat gratuitously.'
- (31') *panjere xod be xod bāz kard- e šod - φ
window self with self open made-part. became-subj.
'*The window was opened gratuitously.'
- (32') *āb xod be xod sard kard- e šod - φ
water self with self cool made-part. became-subj.
'*The water was made cool gratuitously.'

In regard to the optional deletion of *kard-e* in sentences (29d) - (31d) as well as items (32b) it is sufficient to mention that this deletion process seems to be part of a more general process of *kardan* deletion in Persian. That the application of the infinitival nominalization, as a result of that (1) the verb of the clause appears in its non-finite form, (2) the infinitivized verb becomes the head of the Ezafe--i.e., genitival construction, (3) the ex-direct object loses its case marking and appears immediately after the Ezafe morpheme, and (4) the ex-subject while being preceded by the agentive preposition *tavassot-E* 'by' optionally follows the ex-direct object, to the structures underlying sentences (33a) and (34a) produces items (33b,c) and (34b,c) respectively where in the (b) members the infinitive *kardan* appears whereas in the (c) members it has been deleted supports this observation. (For further elaboration on infinitival nominalization in Persian see Dabir-Moghaddam, 1982).

- (33) a. nasrin in mowzu?-rā barrasi kard- φ
Nasrin this issue-DO investigation made-subj.
'Nasrin investigated this issue.'
- b. barrasi kard-an-E in mowzu? (tavassot-E nasrin)
investigation made-INF. this issue by Nasrin
- c. barrasi-y-E in mowzu? (tavassot-E nasrin)
'The investigation of this issue (by Nasrin).'
- (34) a. nasrin nāme -rā post kard- φ
Nasrin letter-DO mail made-subj.
'Nasrin mailed the letter.'
- b. post kard-an-E nāme (tavassot-E nasrin)
mail made-INF. letter by Nasrin
- c. post-E nāme (tavassot-E nasrin)
'The mailing of the letter (by Nasrin).'

It seems to me that the deletion of *kard-e/kardan* is determined by pragmatic considerations in order to lessen the degree of the agentive force implied in the sentence. That the deletion of *kard-e* in the passive sentences (29d) - (31d) as well as item (32b) produces ambiguous/opaque structures between an inchoative and a passive reading supports this observation. Now I return to the discussion of passive.

There are auxiliary causative constructions in Persian that behave differently from the auxiliary causative constructions discussed above. That is, there are auxiliary causative constructions in Persian such as items (a) below for which there is a corresponding inchoative form, cf., items (b), and a corresponding inchoative form with a reason adverb,⁸ cf., the grammatical version(s) of items (c), but not any corresponding passive forms, cf., the ill-formedness of items (d) and the ungrammatical version(s) of items (c). The existence of these sentences suggests that the transformational rule of passive in item (28) should be constrained such that it would not apply to the sentences in (35a) - (38a). I claim that passive is a governed rule in Persian in the sense that it only

applies to verbs that express a volitional act. Since the verbs in sentences (35a) - (38a) express non-volitional acts they may not undergo the transformational rule of passive. It may be noted that all the sentences in (24) - (27) and sentences (29a) - (31a) as well as (22e) that underwent passivization have verbs that express volitional acts.

- (35) a. nasrin ali-rā ranjide kard- φ
Nasrin Ali-DO offended made-subj.
'Nasrin offended Ali.'
- b. ali (xod be xod) ranjide šod - φ
Ali self with self offended became-subj.
Lit. 'Ali became offended (gratuitously).'
- c. ali (az dast-E nasrin / az nasrin / *tavassot-E nasrin)
Ali of hand Nasrin of Nasrin by Nasrin
ranjide šod - φ
offended became-subj.
Lit. 'Ali became offended (of Nasrin/*by Nasrin).'
- d. *ali (az dast-E nasrin/az nasrin/tavassot-E nasrin)
ranjide kard-e šod-φ
Lit. 'Ali was offended (of Nasrin/by Nasrin).'
- (36) a. nasrin ali-rā nārāhat kard- φ
Nasrin Ali-DO angry made-subj.
'Nasrin made Ali angry.'
- b. ali (xod be xod) nārāhat šod - φ
Ali self with self angry became-subj.
Lit. 'Ali became angry (gratuitously).'
- c. ali (az dast-E nasrin / az nasrin / *tavassot-E nasrin)
Ali of hand Nasrin of Nasrin by Nasrin
nārāhat šod - φ
angry became-subj.
Lit. 'Ali became angry (of Nasrin/*by Nasrin).'
- d. *ali (az dast-E nasrin/az nasrin/tavassot-E nasrin)
nārāhat kard-e šod-φ
Lit. 'Ali was made angry (of Nasrin/by Nasrin).'
- (37) a. in dāru badan-E u-rā zaʔif kard- φ
this medicine body he-DO weak made-subj.
'This medicine weakened his body.'
- b. badan-E u (xod be xod) zaʔif šod - φ
body his self with self weak became-subj.
Lit. 'His body became weak (gratuitously).'

- c. badan-E u (az in dāru / *tavassot-E in dāru)
of this medicine by

za?if šod-φ

Lit. 'His body became weak (of this medicine/*by this medicine).'

- d. *badan-E u (az in dāru / tavassot-E in dāru) za?if

kard- e šod-φ
made-part.

Lit. *'His body was made weak (of this medicine/by this medicine).'

- (38) a. garmā-Y-E šadid gol - hā -rā pažmorde kard- φ
heat severe flower-plu.-DO fade made-subj.
'The severe heat faded the flowers.'

- b. gol-hā (xod be xod) pažmorde šod -and
self with self became-subj.
Lit. 'The flowers faded (gratuitously).'

- c. gol-hā (az garmā-Y-E šadid / *tavassot-E garmā-Y-E
of heat severe by

šadid) pažmorde šod-and

Lit. 'The flowers faded (of severe heat/*by severe heat).'

- d. *gol-hā (az garmā-Y-E šadid/tavassot-E garmā-Y-E šadid)
pažmorde kard-e šod-and

Lit. *'The flowers were made to fade (of severe heat/by severe heat).'

Further support for the claim that only verbs that express volitional acts undergo the passive rule in (28) is provided by the non-existence of a passive form for a construction with the non-causative transitive *dust dāštan* 'like' and a construction with the morphological causative verb *xoškār(i)dān* 'dry'. Clearly, both of these verbs express non-volitional acts. Sentences (39) and (40) exemplify this observation.

- (39) a. nasrin ali-rā dust dard- φ
Nasrin Ali-DO liking has-subj.
'Nasrin likes Ali.'

- b. *ali (tavassot-E nasrin) dust dāšt- e
Ali by Nasrin liking had-part.

mi - šav - ad
IMPF.-become-subj.

'Ali is liked (by Nasrin).'

- (40) a. nasrin tamām-E gol-hā-y-E tuy-E bāqče -rā
Nasrin all flower-plu. in garden-DO

xošk- ān -(i)d- φ
dry-cause-past-subj.

'Nasrin caused all the flowers in the garden to dry.'

- b. *tamām-E gol-hā-y-E tuy-E bāqče (tavassot-E nasrin
all flower-plu. in garden by

xošk- ān -(i)d- e šod - φ
dry-cause-past-part. became-subj.

*'All the flowers in the garden were made to dry (by Nasrin).'

To summarize, the discussion in the foregoing paragraphs suggests the following:

- (41) a. There is a transformational rule of passive in Persian that relates the structure underlying an active sentence to the structure underlying its passive counterpart.
- b. The application of the transformational rule of passive produces 'unambiguous/transparent passives' in the sense that regardless of the presence or deletion of the 'by-phrase' they have only a passive interpretation. The passive constructions which are formed on the auxiliary causative constructions in Persian may also optionally undergo a syntactic process of *kard-e* deletion. The deletion of the 'by-phrase' in the constructions without *kard-e* produces 'ambiguous/opague passives' which are potentially ambiguous between an inchoative and a passive reading.
- c. The transformational rule of passive in Persian is a governed rule in the sense that it only applies to the class of verbs that express volitional acts.

3. Demoted Agent

All passive examples that I have presented in the previous sections in which the 'by-phase' is expressed belong to the written standard Persian. In the colloquial standard Persian, the agentive phrase is omitted, because it is generally the case that the agent is either recoverable from the context (linguistic, extra-linguistic, prior knowledge, etc.), or it is unknown to the speaker, or that it is known but he desires to avoid mentioning it. The speaker might avoid mentioning the agentive phrase because, for instance, either he considers this piece of information to be irrelevant, or he wants to be polite, or he intends to be sarcastic. Thus, sentence (26b) above but with the 'by-phrase' omitted, for instance, will be felicitously used by a speaker as first hand news, to inform another person who is aware (i.e., has prior knowledge) that 'the university professors had given a request to the head of the university.' In the same vein,

items (31c,d) without the 'by-phrase' may be felicitously uttered as a first hand information when the hearers are aware of the fact that 'Nasrin was trying to open the window.' Similarly, in the following examples, where the agent is unknown to the speaker (cf. 42), or is known but he desires to avoid mentioning (cf. 43), the passive construction is highly preferred to its corresponding active form:

- (42) a. in masjed dar zamān-E safaviye sāxt- e
this mosque during period Safavid built-part.

šod - e ast- φ
became-part. is-subj.

'This mosque has been built during the Safavid period.'

- b. šaxsi/yeki in masjed-rā dar zamān-E safaviye
someone this mosque-DO during period Safavid

sāxt- e ast- φ
built-part. is-subj.

'Someone (builder/architect) has built this mosque during the Safavid period.'

- (43) a. vaqti dar havāpeymā bud- am š[in xabar be man
when in airplane was-subj. this news to me

ettelā? dād - e šod - φ]
information gave-part. became-subj.

'When I was in the airplane, this news was given to me.'

- b. vaqti dar havāpeymā bud- am š[šaxsi in xabar-rā
when in airplane was-subj. one this news -DO

be man ettelā? dād - φ]
to me information gave-subj.

Lit. 'When I was in the airplane, someone gave this news to me.'

If the above observations are correct, then they suggest that in cases where the agent of the proposition is 'redundant' (i.e., it is either recoverable from the context, or unknown, or intentionally undisclosed by the speaker) the preferred 'strategy' is to use the passive construction rather than its corresponding active. In fact, in traditional grammars of Persian the term *šiqa-E majhul* which means a construction with 'unknown agent' is used to refer to the passive voice (Phillott, 1919:285).

Thus, the syntactic correlation between the active sentences and their corresponding passives through the postulation of the Passive Formation Rule (28) has to be supplemented with the following rule of 'by-phrase' Deletion which is intrinsically ordered with respect to the transformational passive rule.

(44) 'By-Phrase' Deletion Rule (Optional)

SD:	X	-	tavassot-E	+	NP	-	Y
	1		2				3
SC:	1		φ				3

Furthermore, I claim that active sentences and their passive counterparts are associated with different functions in the use grammar (Chomsky, 1957: 102) of Persian. The former construction is used when the speaker assumes the mentioning of the agent as crucial as the mentioning of the predicate (i.e., the rest of the sentence), whereas in the latter type of construction, the superficial subject and the predicate are assumed to be crucial, hence the speaker intends to draw the hearer's attention to those rather than the agent which he considers to be 'redundant' (in the sense specified in the last paragraph). As a result, he downgrades (i.e., deemphasizes) it either by moving it from the topic position, or by not expressing it. All this suggests that the choice made by the speaker of Persian on whether to utter an active sentence or its corresponding passive form is pragmatically determined.

4. Conclusion

In this paper I addressed the question of passive in Persian. The question of passive has been a controversial issue in the transformational treatments of Persian. While a group of scholars have postulated the existence of passive in Persian, Moyne (1974) has called this construction inchoative. In the first half of this paper I challenged the following two claims made in Moyne (1974). (1) Moyne's observation in regard to the demise of the Old Persian passive forms as active forms in the Middle Persian and the continuation of that form in the Modern Persian as an indication of the non-existence of passive in Modern Persian. I argued that although this characterization is true, it is only part of the truth. I claimed that evidence based on the diachronic syntax of Persian suggests that since Early Modern Persian the Middle Persian intransitive motion verb *šudan* 'go' acquired a specialized usage as a passive auxiliary--i.e., *šodan* 'become'. (2) I illustrated that, contrary to Moyne's claim as to the function of the 'by-phrase' as an instrumental phrase in Persian, the 'by-phrase' indeed marks an agentive phrase. In the second half of this paper, I argued for a new proposal for the treatment of passive in Persian. In particular, I claimed that there is a syntactic category of passive independent of the inchoative constructions. I claimed that the application of the passive rule to the structures underlying active sentences always produces unambiguous passive constructions. I argued that the output of the application of the passive rule to the auxiliary causative constructions in Persian (with the 'by-phrase' deleted) may optionally undergo another syntactic process. The resulting construction, then, would be ambiguous between an inchoative and a passive interpretation. I argued that the rule of passive in Persian is a governed rule in the sense that it applies to verbs that express volitional acts. Finally, I claimed that the choice made by the speaker of Persian on whether to utter an active sentence or its passive counterpart is pragmatically determined.

NOTES

*I would like to thank Professor Yamuna Kachru for her valuable comments and criticism on earlier versions of this paper.

¹The reinterpretation of the periphrastic passive forms as active forms was done "by analogy with the pattern of the intransitive forms, in which the agent is likewise the subject" (Brunner, 1971:246). The process of analogy was made possible by two tendencies observed in the language.

(1) "An agent pronominal suffix is occasionally attached to a perfect form" (Brunner, 1971:246), and (2) "auxiliary verbs sometimes show elision after the perfect participle" (Brunner, 1971:247). The concatenation of these two tendencies, then, was sufficient to force the reinterpretation of periphrastic passives as active forms on an analog with the active forms in the language.

²In Modern Persian an equivalent of this sentence, e.g., (i), is ambiguous between an inchoative and a passive reading. (For a discussion on ambiguous passives see pages 15-18 in the text.) The same could have been the case in Early Modern Persian.

- (i) zan - ān -E mesr az in kār āgāh šod - and
 woman-plu. Egypt of this matter aware became-subj.
 'The women of Egypt became aware/were made aware of this matter.'

The uppercase 'E' in the above example and in the examples in the text indicate the 'Ezafe'--i.e., genitival--morpheme.

³I owe the following two arguments to Professor Yamuna Kachru.

⁴In this sentence it is possible to get a reading, but that reading does not contradict the issue under discussion. The possible reading is that 'The request of the professors became accepted automatically.' Sentence (26'b) is still acceptable if we have both the adverbial phrase as well as the 'by-phrase' in the same sentence. This is shown below:

- (26'') b. darxāst-E ostādān xod be xod tavassot-E
 request professors self with self by
 re?is-E dānešgāh paziroft- e šod - φ
 head university accepted-part. became-subj.

Lit. 'The request of the professors became accepted by the head of the university automatically.'

⁵The claim that only accusative objects may be passivized in Persian is supported by the ungrammaticality of items (ib) and (iib) in which a dative and an oblique object have been passivized, respectively. Items (ic) and (iic), on the other hand, are grammatical since in both cases an accusative object has been passivized.

- (i) a. nasrin ketāb-rā be ali dad- φ
 Nasrin book -DO to/dat. Ali gave-subj.
 'Nasrin gave the book to Ali.'

- b. *ali (tavassot-E nasrin) ketāb-rā dād-e šod - φ
 Ali by Nasrin book-DO gave-part. became-subj.
- c. ketāb (tavassot-E nasrin) be ali dād-e šod-φ
 'The book was given to Ali (by Nasrin).'
- (ii) a. xodā xatar-rā az nasrin gozar-ān -(i)d- φ
 God danger-DO from Nasrin pass-cause-past-subj.
 Lit. 'God passed the danger from Nasrin.'
- b. *nasrin (tavassot-E xodā) xatar-rā gozar-ān -(i)d- e
 Nasrin by God danger-DO pass-cause-past-part.
 šod - φ
 became-subj.
- c. xatar (tavassot-E xodā) az nasrin gozar-ān-(i)d-e šod-φ
 Lit. 'The danger was passed from Nasrin (by God).'

⁶That condition (i) must be met in order to derive a grammatical passive sentence is shown by the ungrammaticality of item (ib) whose derivation violates this condition. In the derivation of the passive item (ib) from the structure underlying item (ia) the derived subject is taken from the embedded clause whereas the logical subject and the verb that appears in its participial form belong to the matrix clause--i.e., a clear violation of condition (i) in item (28). For convenience of reference I have specified the SD and SC of the passive rule in item (28)--ignoring condition (i)--in the (a) and (b) members, respectively.

- (i) a. S_0 [bačče-hā in vāqe?iyat-rā S_1 [ke u
child-plu. this fact -DO that he
₂
- in ketāb-rā be xāter-E ānhā nevešt- φ] S_1
this book -DO for sake their wrote -subj.
₄
- paziroft-and] S_0
accepted-subj.
₆

'The children accepted the fact that he wrote this book for their sake.'

- b. * in vāqe?iyat-rā ke u in ketāb be xāter-E
 this fact -DO that he this book for sake
₄
- ānhā nevešt- φ (tavassot-E bačče- hā)
 their wrote -subj. by child-plu.
₂

paziroft- e šod - φ
accepted-part. became-subj.
 6

⁷ Auxiliary causative construction in Persian are formed as a result of the combination of a predicate adjective with the causative auxiliary *kaardan* 'do; make'. For a discussion of the syntax and semantics of the auxiliary (and other) causative constructions in Persian see Dabir-Moghaddam (1982).

⁸ I would like to emphasize that the well-formed sentences in items (c) are inchoative constructions containing a reason adverb. They are not passive since (1) they do not allow the *tavassot-E* phrase, and (2) they do not have a corresponding 'unambiguous/transparent passive' form (cf. the ungrammaticality of items (d)).

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AUX-CLITICIZATION AS A MOTIVATION FOR WORD ORDER CHANGE¹

Hans Henrich Hock

This paper shows that in three geographically separate areas of the world (Europe, Kashmir, and West Africa) a major-constituent word order change from SOV to SVO has been initiated by the shifting of clitic AUX to clause-second position. This shift, in turn, is followed by the tendency for other finite verbs to move to the same position. A final step may be the generalization that all members of the constituent Verb shift to second position, bringing about the order SVO.

The movement of clitics to clause-second position has been shown to be a universal tendency by Steele (1975, 1977a,b). The fact that such a clitic shift of AUX has led to a change from SOV to SVO in three geographically disconnected areas suggests that AUX-cliticization and the movement of clitic AUX to second position is one of the most important mechanisms by which SOV languages change their order to SVO.

There is now a plethora of proposed explanations for the change from SOV to SVO syntax. These explanations cover the following range:

(1) LOSS OF CASE MARKINGS: Across-the-board neutralizations of case distinctions through phonological change result in systematic ambiguities in SOV languages such that in an excessively large number of contexts it will become impossible to tell subjects and objects apart.² This systematic ambiguity then is said to be remedied by a shift toward SVO order, which permits a clear distinction between subjects and objects in terms of their relative position next to the verb (Vennemann 1973, 1975). As Hyman (1975) has pointed out, however, the difficulty with this explanation is that there are languages with perfectly stable SOV syntax, but without any evidence for ever having had case markers. To this might be added the evidence of Indo-Aryan, where the pervasive loss of case endings led, not to a change toward SVO, but rather to a rigidification of the basic SOV order of earlier Indo-Aryan.

(2) AFTERTHOUGHT: As Hyman (1975) observed, SOV languages share a certain difficulty as compared to VSO and SVO languages. Whereas in the latter types of languages it is always possible to add 'afterthoughts' at the end of an otherwise complete sentence (such as adverbial NPs, as in Engl. He got run over by a car ... yesterday, just around the corner from here), without disrupting the basic ordering principle, this is not possible in SOV languages. For the addition of such an afterthought in an SOV language, i.e. of an NP to the right of the verb, would contradict the basic verb-final ordering principle. If, then, in spite of this basic principle, we do add an afterthought, it is possible to reinterpret the resulting S + O + V + Adv.NP as indicating a non-verb-final grammar; and by generalization from structures of this sort it is then possible to arrive at structures of the type S + V + O (+ Adv.NP), with all non-subject NPs to the right of V. A possible diffic-

ultly with this claim is alluded to in Vennemann 1975, namely that 'afterthought' (or extraposition) is found in many quite 'stable' SOV languages (such as Japanese and, one might add, Dravidian), i.e. in languages which (a) exhibit all the SOV features recognized by Greenberg (1966) and (b) do not offer any evidence for an incipient change toward SVO typology. One might well ask under what conditions extraposition will lead to SVO structures, if it has failed to do so in languages like Japanese. Note, however, that it is probably impossible to predict in a general, non-ad-hoc fashion, under what conditions reinterpretation of any given potentially ambiguous structure will take place, in any language. The 'afterthought' explanation, therefore, at this point cannot be rejected out of hand.

(3) GRAMMATICALIZATION OF SERIAL-VERB CONSTRUCTION: This cause of change has been proposed by Hyman (1975). However, as Hyman himself observes, he is not aware of any language in which serial-verb constructions have led to a change from SOV to SVO order. Without any actual evidence for such a change, however, this proposed cause must be considered entirely speculative.

(4) TARGET STRUCTURE: This is the somewhat mystical concept proposed by Haiman (1974) as the explanation of the shift to SVO in German (and some similar developments in early English, French, and Romansch). Haiman's starting point is a proto-language with inherited superficial verb-final order. '(T)he successor languages, among them Old High German, rapidly abandoned it in favor of verb-initial and verb-second order.' The first step is a language with underlying VSO order; and from this, the 'V/2 target' produces, through various changes, the modern structure SVO, whose verb-second position satisfies the target. There are several problems with this proposal. First of all, it is not clear how the ancestral SOV of Proto-Indo-European changed to the postulated underlying VSO of Proto-Germanic. Secondly, there is no cogent evidence for postulating an intermediate stage with VSO between earlier SOV and later SVO (cf. e.g. the order of major constituents in early Germanic given below). Finally, as Steele (1977b) aptly observed, '(t)argets are an artifact of the theoretical framework in which H[aiman] works.' According to Steele, it is perfectly possible--and natural--to explain the change toward SVO as the result of generalization of the placement of clitic AUX in clause-second position,⁴ for there is a cross-linguistics tendency for clitics and AUX to be placed in clause-second position (cf. also Steele 1975, 1977a). And since this tendency can be observed even in (otherwise) solidly SOV languages like Luiseño, a Uto-Aztecan language of Southern California,⁵ there is in her view no need to invoke an intermediate stage with VSO in order to get from SOV to SVO.

As the following discussion will show, Steele's proposal that AUX-CLITICIZATION is the motivation for the change from SOV to SVO, although made only in passing and without an examination of actual data, is in fact the most fruitful and accurate one, not only for Germanic, but also for the neighboring Romance, Slavic, and Baltic languages. Moreover, and more importantly, there is evidence for such a development also in Kashmiri, a language surrounded by SOV languages and belonging to pretty solidly SOV stock, and probably also in the West African Gur languages. The fact that this change, thus, seems to have taken place independently in three geographically quite distant and disconnected areas suggests that AUX-cliticization and the movement of clitic AUX to clause-second position may be one of the

most important mechanisms for the change from SOV to SVO.

It is generally agreed that Latin, the ancestor of the Romance languages, especially in its earliest attestations, had SOV as its basic major-constituent order.⁶ There is good reason to believe that also Germanic, in its earliest attestations, had this order.⁷ Lithuanian likewise has predominant SOV order in its earliest documents.⁸ For Slavic, the situation is slightly more complex. As Berneker (1900:58, 158-9, and passim) observed, there are two major patterns in early Slavic: Verb-initial (i.e. VSO) in lively narrative vs. verb-final (i.e. SOV) in descriptions, reflections, didactic prose.⁹ Since VSO or verb-initial order is found as a marked pattern also in the other languages,¹⁰ frequently in the context of lively narration (but also in other contexts), it is possible to argue that Slavic here has simply exploited, in a larger number of contexts, a device which was available also to the other Indo-European languages, and that its (original) basic word order was the other attested major pattern, SOV, just as it was in the other languages.

In early Latin, as well as in early Germanic, the ordering of auxiliaries (AUX) in respect to their main verb (MV) was consonant with the basic SOV order of these languages. Thus, even in Plautus, known for his greater tendencies toward using VO patterns than other writers of Latin, we find a ratio of 18 : 6 for MV + AUX vs. AUX + MV in a sample passage from the *Capituli*. And the two relevant attestations in pre-600 A.D. Runic Germanic both have the order MV + AUX:

- | | | |
|------|------------------------------|-------------------------------|
| (i) | <u>flagda faikinaR ist</u> | 'is menaced by evil spirits' |
| | MV AUX | |
| (ii) | <u>prawiĵan haitinaR was</u> | 'was destined for the throes' |
| | MV AUX | |

Also in the Gothic of the Skeireins this is the normal order (cf. Smith 1971).

A clear change, however, can be observed in post-600 A.D. Runic:

- | | | |
|-------|--|---|
| (iii) | <u>ni s solu sot, ni s Akse stAin skorin</u> | '(It) is not hit by the
sun, the stone is not
cut with a sharp stone' |
| | AUX MV AUX MV | |

Here the AUX appears in second position in the clause, while the MV is left "stranded" at the end of the clause.

Early Runic offers only example (iii) above, but the Old English of *Beowulf* provides parallel evidence for the tendency of AUX to move into second position.¹¹ Later, but still moderately early Old English (as reflected in the *Anglo-Saxon Chronicle*) shows a further shift, namely an increasing, but not as progressed tendency for other finite verbs to appear in clause-second position, with the modals, which also in other respects tend to take an intermediate position between AUX and full verbs, showing intermediate behavior. (Cf. Fourquet 1938.) The final development, then, is the shift to the Modern English order, with AUX, modal, and full verb in second, or post-subject position, and with MV directly following its AUX or modal.

What we can observe here is a clear 'staging' of the shift from SOV to SVO. The first element to move is AUX. This is no doubt to be attributed to its clitic status and to the tendency of clitic elements to move to second position. (Cf. the cross-linguistic arguments and evidence in Steele 1975, 1977a, b.¹²) What is especially important, although not to my knowledge emphasized in the literature, is that there is independent, phonological evidence for the clitic status of AUX. Compare the difference between the full form ist 'is' of (i) above with the s of (iii), which clearly shows the effects of clitic shortening; compare also the voicing and rhotacism in Old Norse er 'is', and the clitic-shortening loss of final t in Old English is 'is'. Evidence like this shows that the assumption that AUX was clitic, and therefore moved into second position, is not simply ad hoc.

The next stage shows a generalization, such that other finite verbs shift to second position, with the modals tending to be in the vanguard of this further development. At this stage, the language probably in effect becomes SVO.

The final step is the generalization that all members of the constituent Verb occur in second position, thus removing any remaining exceptions to the basic SVO order.¹³ And since the language now is SVO, the ordering of AUX and MV in that clause-second position will be AUX + MV, the order which is consonant with SVO.

It should be noted, however, that each step in this development is a separate change and does not by necessity lead to the other steps. A case in point is Modern Standard German, which has failed to complete the last step and still offers the pattern of finite verbs in second position (in main clauses), with MV left "stranded" at the end of the clause:

- | | | |
|------|----------------------------------|-------------------------|
| (iv) | <u>Er liebt seine Frau</u> | 'he loves his wife' |
| | MV | |
| | finite | |
| (v) | <u>Er hat seine Frau geliebt</u> | 'he has loved his wife' |
| | AUX | MV |

Along this path from SOV to SVO there are a number of other, more minor patterns which can frequently be observed and which, especially together with independent, phonological evidence for AUX-cliticization, can be used as evidence for a change from SOV to SVO even where there is no direct evidence for the initial step of shifting (only) cliticized AUX to second position. These are:

(a) Patterns like (iii) and (v) above, or (vi) below, with AUX in second position and MV "stranded" at the end of the clause (or after its object).

- | | | |
|------|----------------------------------|--------------------------|
| (vi) | OE <u>her waes Crist ahangen</u> | 'here Christ was hanged' |
| | AUX | MV |

(b) Patterns with AUX + MV in clause-final position, as in (vii) below. These may cooccur with the old MV + AUX pattern (cf. *ibid.*) and can be explained as a compromise between this MV + AUX pattern and the new pattern

Evidence for a shift from SOV to SVO through AUX-cliticization is not restricted to this group of neighboring, European languages which may well exhibit an areal spread of a single word order shift. We find it also outside of Europe.

One example is that of Kashmiri, a language surrounded by SOV languages and belonging to the otherwise quite solidly SOV stock of Indo-Aryan. Like these other languages, Kashmiri has the order Genitive + Noun and Noun + postposition, patterns which normally go along with SOV order. Unlike the other languages, however, Kashmiri exhibits the following peculiarities: Finite verbs occur in clause-second position, with some variation between second and final position in dependent clauses. If AUX is in second position, the MV may be "stranded" at the end of the clause or it may directly follow the AUX. In dependent clauses, AUX + MV is found beside MV + AUX in the clause-final position. Cf. (xiv) - (xvi) below.¹⁷

- (xiv) bɪ ʧhus ʧiθ' lēkhān 'I am writing a letter'
 AUX MV
 beside bɪ ʧhus lēkhān ʧiθ' (id.)
 AUX MV
- (xv) asōkan von ki su yī nɪ gulmargi 'Ashok said that he
 'that' 'come' will not come to G.'
 'he'
 beside bɪ ʧhus sočān ki gulmargi gatshihə 'I think that I should
 'that' 'go' go to G.'
- (xvi) yath sodur khon ʧhi vanān 'which they call S.Kh.'
 AUX MV
 beside yiman ... mugɪl gārdin vanān ʧhi 'which they call M.G.'
 MV AUX

In addition to these patterns which are typical of a language changing from SOV to SVO via AUX-cliticization, Kashmiri also offers independent, phonological evidence for the clitic status of 'be', its auxiliary verb: MIAr. acch- has undergone clitic shortening to ch- (as in chus-).¹⁸

A final, probable example of the word order shift under discussion comes from (some of) the West African Gur languages and has been discussed in greater detail in Garber 1980. I will only summarize the major points.

In the language family of which the Gur languages are a part, the following word order types are found:

- Dogon: $S + O + Adv.NP + \left\{ \begin{array}{l} V \\ MV + AUX \end{array} \right\}$
- Mande/Senufo: $\left\{ \begin{array}{l} S + O + V \\ S + AUX + O + MV \end{array} \right\} + Adv.NP$

(Other) Gur: $S + \left\{ \begin{array}{c} V \\ \text{AUX} + MV \end{array} \right\} + O + \text{Adv.NP}$

Note further that some of the SVO Gur languages exhibit vacillation between SVO and SOV patterns. Finally, all the languages in question have the order Genitive + Noun and Noun + Postposition, arrangements normally found in SOV languages.

Given what we now know, this geographical record can be interpreted very much like the chronological record of Germanic, namely as one of AUX-cliticization and shift of clitic AUX to second position (cf. Mande/Senufo), followed by generalization of the whole consituent Verb to second position.¹⁹ The only potential difficulty is the fact that concurrent with the AUX-in-second-position stage we also find obligatory extraposition of Adv.NPs. It is therefore possible to argue that this pattern, with the verb in non-final position, was at least in part responsible for the further shift toward SVO in some of the Gur languages. (Cf. Hyman's 'afterthought' principle.) However, it is also possible that this obligatory, rather than optional extraposition was at least in part made possible by the fact that AUX had shifted into second position, thus creating exceptions to the verb-final pattern. At any rate, however, there is good reason to believe that AUX-cliticization was one of the factors, if not the single most important factor, motivating the shift from SOV to SVO.

This paper has presented evidence that AUX-cliticization (and shift of clitic AUX to clause-second position) is an important factor in the shift from SOV to SVO. Given the fact that other theories concerning the causes of such a shift are either dubious (loss of case markings, target structures), or merely speculative (grammaticalization of serial verb constructions), or at best possible, but (as yet) without any conclusive supporting evidence (afterthought), it is possible, but not strictly speaking necessary, to conclude that--excluding substratum-induced changes--AUX-cliticization may be the only motivation for the shift from SOV to SVO, wherever such a change occurs.²⁰ I will leave this as a challenge for further research by other linguists.

NOTES

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²Vennemann (1974, 1975) adds as another element that of topicalization: Once morphological distinctions between subjects and objects are lost, it is in his view no longer possible in an SOV language to topicalize objects without ambiguity, since it will be impossible to distinguish SOV from OSV (with fronted, topicalized object). Also this claim is dubious, since languages may use different devices, such as stress and intonation, or extraposition of the subject to the right of the verb, in order to accomplish

the same goal. (All of these devices are employed in languages like Hindi, without there being a change from SOV to SVO.)

³This is especially true for the relative order of object and verb, while as observed in note 2, subjects may extrapose to the right of the verb.

⁴Haiman (p. 148) makes passing reference to this possibility, but without realizing (or acknowledging) the full implications, such as the fact that this development makes the assumption of an intermediate VSO stage unnecessary.

⁵For data and additional references see Steele 1975.

⁶Even Friedrich (1975, 1977), who is highly sceptical concerning the view that PIE was SOV, agrees on this point.

⁷For the early Runic inscriptions and the Gothic of the Skeireins, cf. above all the evidence in Smith 1971. A recent paper by Ebel (1978), apparently independently, also comes to the conclusion that Skeireins Gothic had predominant SOV order. See also Fourquet 1938, Ries 1907 for the SOV evidence of the Old English Beowulf. Finally, compare the statistics in notes 10 and 11 below. Friedrich (1975, 1976, 1977), ignoring this evidence, concentrates on the VO patterns of later Germanic and on the evidence of gapping to buttress his repeated claim that Proto-Germanic was VO. However, the later VO pattern clearly must be an innovation, given the evidence of early Runic, Skeireins Gothic, and Beowulf Old English. And as Subbarao (1972, 1974) has conclusively shown, gapping and other intimately related movement rules provide no certain evidence whatsoever for basic or underlying constituent order--unless contrary to all the other available evidence, we are prepared to accept Hindi, or even the Dravidian languages, as having basic or underlying VO.

⁸In a sample from the Old Lithuanian catechism of Baltramiejus Vilentas, I have found the following ratios (where X = a short adverbial constituent or a conjunction):

OV/V#:	42	=	65%
#(X)V(SO):	17	=	26%
SVO:	5	=	7.5%
Other:	1	=	1.5%

⁹Friedrich (1975, 1976, 1977) distorts this position.

¹⁰For Lithuanian, cf. note 8 above. For Latin, cf. the following ratios from a sample of Caesar's Bellum Gallicum.

OV/#:	74	=	80%
#(X)V(SO):	7	=	7.4%
SVO:	7	=	7.4%
Other:	5	=	5.2%

Older Runic:

OV/#:	22	=	61%
#V(SO):	6	=	17%
SVO:	8	=	22%

Beowulf (1-59):

OV/#:	50	=	61.5%
#(X)V(SO):	24	=	30%
SVO:	7	=	8.5%

Note especially the difference between the epic Beowulf, with its frequent passages of lively narrative and its higher ratio of verb-initial patterns, and the prosaic Runic inscriptions, with a rather low incidence of #V.

¹¹Ries (1907) gives the following statistics (excluding verb-initial clauses):

	V(X)#		SV
Full verb	340 = 79%	91 =	21%
Modal	54 = 83%	11 =	17%
AUX	32 = 26.6%	88 =	73.3%

At this point, the major division seems to be between AUX and Modal/Full Verb. The difference between the latter two is negligible. Moreover, the incidence of SV is as yet not significantly higher than in Older Runic.

¹²Note however that similar conclusions were reached--on narrower grounds--by earlier scholars, such as Ries (1907:316-17) and especially Fourquet (1938:194-5).

¹³I do not think that this development requires the additional motivating factors suggested by Stockwell (1977), namely the fact that extraposition was possible (or in some cases was required) in Old English. The fact that Modern German offers very similar patterns of extraposition, without shifting its "stranded" MV next to the second-position AUX, suggests that extraposition is not a sufficient motivation for the shift.

¹⁴Cf. Fourquet 1938, who also offers parallel evidence from Old English.

¹⁵Not all the dialects have shifted to SVO.

¹⁶Note that the Latin original offers veritas de terra orta est, with MV + AUX, both occurring clause-finally.

¹⁷These data are drawn from Kachru 1973.

¹⁸Note that other languages, such as Nepali, have undergone a similar change of clitic shortening, without shifting AUX to second position. This

suggests that the shift to second position is a separate step from AUX-cliticization and that it is a tendency, not a **necessary** consequence of cliticization.

¹⁹ Since there is in these languages no evidence for verbal inflection and thus no difference between finite and non-finite, the opportunity for an intermediate pattern, with only finite verbs in second position, does not arise.

²⁰ Armenian may be a language with SVO (from PIE SOV) for which AUX-cliticization does not provide a likely motivation, for as the data in Jensen 1959:120-1 suggest, Armenian synchronically offers the order MV + AUX, usually in clause-final position. (Since in Armenian, MV = participle, i.e. a verbal adjective, and AUX = the verb 'to be', this pattern of MV + AUX is consonant with the fact that also elsewhere, adjectives and predicate nouns directly precede clause-final 'be'.)

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GEMINATION AND SPIRANTIZATION IN TIGRINYA

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In this paper we look at the behavior of geminate consonants in Tigrinya under a rule that spirantizes postvocalic velar stops, arguing that it provides evidence for the claim that phonological structure can make a distinction between one versus two segmental units linked to two adjacent positions in the syllable structure tree. Our results can be viewed as another illustration of the general point that phonological structure cannot necessarily be characterized solely in terms of the inventory and linear arrangement of segments but must also take into account their grouping into higher-order constituents. The paper opens with a brief review of the literature on gemination and spirantization in Biblical Hebrew, showing the motivation for Leben's (1980) analysis in which geminate consonants are expressed as the linking of a single phonological segment to two positions in the syllable structure tree. In the next section we see that quite comparable data exist in Tigrinya motivating a similar analysis, but with the interesting twist that the Obligatory Contour Principle is in fact a language-specific parameter. The following section provides an analysis for the complex patterns of gemination found in Tigrinya at the junction of a verb stem and object suffix. In the final section we look at two rules of complete assimilation and argue that they are best treated in terms of rules that delete a phonological unit from the segmental tier with the resultant long consonant arising from general autosegmental principles of reassociation.

Biblical Hebrew exhibits a number of phenomena illustrating the classic problem of the treatment of geminate consonants that have been the subject of much recent discussion in the literature. Sampson (1973) argued that the contrast between long versus short consonants in Biblical Hebrew should be represented in terms of the feature [long] on the basis of the behavior of these segments under the rule spirantizing postvocalic obstruents. Specifically, an underlying stop will spirantize intervocalically or in postvocalic final position; when initial in a consonant cluster it will spirantize so long as it is not identical to a following consonant: e.g. /kataba/ → /kaθava/ (eventually ka:θvā), yi-xtov, but gibbór (=gib:or) not *givbor 'hero'. Sampson argues that if gib:or is represented as a geminate /gibbor/, then the spirantization rule would have to be given the complex reformulation in (1) to prevent it from affecting the initial consonant in a cluster just in case it is not identical with the following consonant, which is a roundabout way of saying that spirantization does not apply to long consonants.

- (1)

-sonorant -anterior -coronal -voice	→	[+continuant] / V ____	{	[+sonorant] [-anterior] [-coronal] [-voice]	}
--	---	------------------------	---	--	---

But if long consonants are represented as [+long], then the rule can be restricted to just [-long] consonants.

However, Barkai (1974) points out that there are numerous places in the phonology of Biblical Hebrew where long consonants pattern with consonant clusters, thus supporting the geminate notation. For example, vowels are regularly reduced to schwa in the plural of nouns when in the context CVCV (cf. mal-k-î 'my king' but mēlax-îm from /malak-îm/ 'kings'). Reduction is blocked by a following cluster (galgal-îm 'wheels') as well as by a following long consonant (sap:ir-îm 'sapphires'). If long consonants are treated as geminates, then the reduction rule will automatically fail to apply in sappir-îm. Barkai also points out that in some cases long consonants clearly originate from underlying consonant clusters. For example, in the perfect of the verb the 1 and 2 sg. suffixes begin with /t/. When suffixed to a stem ending in /t/, a long consonant arises that fails to spirantize: /karat+ti/ is realized as karât:i 'I made a covenant'. Similarly, the derivational prefix /hit-/ normally appears as hiθ- in hitpaʔel verbs (e.g. hiθ-gaddel 'became great'), but fails to spirantize when the following root begins with a /t/: /hit+tammem/ 'he acted uprightly' is realized as hit:ammem not *hiθ-tammem. Finally, the derivational morphology of the language exhibits processes showing the equivalence of geminates and consonant clusters. Most quadriradical verbs appear in the Piʔel class: gilgel 'rolled', kirsem 'gnawed', kirbel 'clothed'. The causative of triradical verbs is formed by geminating the middle radical; the resultant verb appears in the Piʔel class: cf. gaʕal 'he grew up', but giddel 'he brought up (educated)'. If the long medial consonant of giddel is treated as a geminate, then the fact that it appears in the same verbal class (Piʔel) as quadriradicals such as kirbel is explained.

We thus have a rather paradoxical state of affairs. Rules such as vowel reduction show that long consonants behave like clusters (motivating the geminate notation), while the spirantization rule shows that long consonants do not behave as consonant clusters and is thus inconsistent with the geminate notation (motivating the feature notation for length). But the same segment cannot be consistently represented in two different ways.

This dual behavior of long consonants is bound to remain a paradox in a framework where phonological structure is conceived of as a single linear string of feature matrixes. However, with the advent of multi-linear representations, we can begin to make some sense of this dual behavior. Leben (1980) argues, convincingly in my opinion, that the problem of long consonants in Biblical Hebrew can be solved if phonological structure is conceived as involving syllable structure trees linked to the linear string of feature matrixes. With this dual level of structure we can represent a long segment as one that is associated with two consecutive nodes in the syllable structure tree. The similarities and differences among kirbel, giddel, and gaʕal can be successfully represented as in (2).¹

- (2)
- | | | |
|---|--|---------------------------------------|
| kirbel

CVCCVC
↓ ↓
σ σ | gidel
 \\
CVCCVC
↓ ↓
σ σ | gaðal

CVCVC
↓ ↓
σ σ |
|---|--|---------------------------------------|

In these multi-linear representations kirbel and gid:el share a CVCCVC syllable pattern, with the long /d:/ of gid:el linked to two consonantal positions, while gid:el and gaðal are equivalent in terms of their consonantal structure on the segmental tier, sharing the radicals /gd/. The morphological relationship between gid:el and gaðal can thus be viewed as the substitution of the CVCCVC syllable pattern for the basic CVCVC pattern (with attendant differences in vowel melodies; see McCarthy 1981 for discussion).

The other factors cited by Barkai to motivate the geminate notation in the linear theory can also be viewed as making reference to the CV syllable tier. So, for example, given that malax-ím (from /malak-ím/), galgal-ím, and sap:ir-ím are represented as in (3), the reduction rule can be given the formulation in (4).

- (3)
- | | | |
|---|---|---|
| malak-ím

CVCVC VC
↓ ↓ ↓
σ σ σ | galgal-ím

CVCCVC VC
↓ ↓ ↓
σ σ σ | sapir-ím
 \\
CVCCVCVC
↓ ↓ ↓
σ σ σ |
|---|---|---|

- (4) [+vocalic] → ə / $\frac{\text{---}}{\text{V C V C } \acute{\text{V}}}$

Since the reduction rule (4) requires the reducing vowel to be in an open syllable (i.e. followed by just one consonant), the rule will correctly fail to apply to sap:ir-ím because its initial vowel is followed by two consonants in the syllable tree and is thus not in an open syllable.

Given that a long consonant is represented as a segment that is mapped to two C slots while a short consonant is one that is mapped to just a single C slot, we can now distinguish the length of a segment in terms of the number of positions in the syllable tree that it is associated with and hence can dispense with the feature [long]. The spirantization rule can now be formulated as in (5), where a line drawn through the association link means that the consonant is associated with just one position in the syllable tree, i.e. that it is short.

- (5) [-sonorant] → [+continuant] / [+vocalic] $\frac{\text{---}}{\text{C}^{\text{X}}}$

In order to be consistent with the fact that geminate consonants arising from the juxtaposition of identical consonants across morpheme boundaries fail to spirantize, Leben proposes extending the Obligatory Contour Principle developed in tonal phonology to the treatment of geminates. By this principle a

sequence of identical phonological segments is automatically restructured into a single element on the segmental tier linked to two positions in the syllable tree, as indicated below. By virtue of this principle /karat+ti/ will escape the effects of spirantization.

(6) Obligatory Contour Principle

$$\begin{array}{c} x + y \\ | \quad | \\ C + C \end{array} \rightarrow \begin{array}{c} z \\ \diagup \quad \diagdown \\ C + C \end{array} \quad (x=y=z)$$

$$\begin{array}{c} \text{karat+ti} \\ ||||| \quad || \\ \text{CVCVC} \quad \text{CV} \\ \downarrow \quad \downarrow \quad \downarrow \quad \downarrow \quad \downarrow \quad \downarrow \\ \sigma \quad \sigma \quad \sigma \quad \sigma \quad \sigma \quad \sigma \end{array} \rightarrow \begin{array}{c} \text{karati} \\ ||||| \quad \diagdown \\ \text{CVCVCVCV} \\ \downarrow \quad \downarrow \quad \downarrow \quad \downarrow \quad \downarrow \quad \downarrow \\ \sigma \quad \sigma \quad \sigma \quad \sigma \quad \sigma \quad \sigma \end{array}$$

1. Tigrinya Spirantization

In this paper we shall look at some analogous data from another Semitic language--Tigrinya, a South Semitic language of Eritrea.² Like Biblical Hebrew Tigrinya also has a rule of spirantization that is sensitive to the length of consonants. Although the two languages are genetically related, the Tigrinya spirantization rule is historically unconnected to that found in Biblical Hebrew. In addition many of its geminate consonants occur in patterns unlike those found in Biblical Hebrew. The similarities between the languages are thus on the typological rather than the historical level. We shall argue that the Tigrinya data also support the basic conclusion of Leben's study, i.e. that consonant gemination is best treated as the linking of a single phonological segment to two consonantal positions in the syllable tree.

The Tigrinya spirantization rule is a totally general process that spirantizes the velar stops *k* and *q* postvocalically.³ The rule applies both within morphemes (cf. *mə-rkəb* infinitive, *rāxābā* 3sg.m. perfect 'find') as well as across morpheme and word boundary (cf. *kālbi* 'dog', *ʔaxaləb* 'dogs', *ʔəti xālbi* 'the dog'). In this paper we shall be concentrating on the behavior of this rule with respect to geminate consonants, but in the course of doing so we will make several observations on the syllable structure and the gemination rules to be found in the language. For purposes of discussion we can distinguish four categories of geminate consonants: i) underlying geminates, ii) geminates arising from a rule of gemination, iii) geminates arising from a rule of complete consonant assimilation, iv) geminates arising from the juxtaposition of identical consonants across morpheme boundaries. We will see that spirantization fails to affect geminates from one of the first three categories but will apply to those in (iv).

An example of the first type is provided by a verb such as *fākkārā* 'boast', which displays the CVCCVC root structure of Biblical Hebrew *giddeḏel*. Leslau (1941) classifies Tigrinya verbs into four major categories: Type A verbs are simple triradicals with the root shape CāCāC in the perfect (e.g. *rāxāb-ā* 'he found'); Type B show the middle radical geminated (e.g. *fākkār-ā* 'he boasted'); in Type C the initial root vowel is *a* (e.g. *barāx-a* 'he blessed'); and Type D are the quadriradicals (e.g. *māskār-ā* 'he witnessed'). For our purposes here the most important point is that when the second radical of a Type B verb is a velar *k* it never spirantizes to *x*, showing

that the spirantization rule must be restricted to short nongeminate consonants. The rule is thus essentially identical to the Biblical Hebrew rule (5), differing in just its restriction to the velars.

- (7) $[k, q] \rightarrow [+continuant] / [+vocalic]$ $\frac{\overline{N}}{C}$

Given this formulation, the rule will apply to the underlying representations of Type A /rākāb-ā/ and Type C /barāk-ā/, but will fail to apply to Type B /fākkār-ā/ and Type D /māskār-ā/.

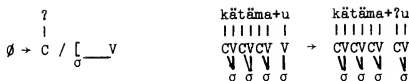
- | | | | | | |
|-----|---------|---------|---------|----------|-----------------|
| (8) | rākāb+ā | fākār+ā | barāk+ā | māskār+ā | underlying rep. |
| | | \ \ \ | | | |
| | CVCVC V | CVCCVCV | CVCVC V | CVCCVC V | |
| | ↓ ↓ ↓ | ↓ ↓ ↓ | ↓ ↓ ↓ | ↓ ↓ ↓ | |
| | σ σ σ | σ σ σ | σ σ σ | σ σ σ | |
| | rākāb+a | inappl. | barāk+ā | inappl. | spirantization |
| | | | | | |
| | CVCVC V | | CVCVC V | | |
| | ↓ ↓ ↓ | | ↓ ↓ ↓ | | |
| | σ σ σ | | σ σ σ | | |

Before turning to one of the other categories of geminates in Tigrinya, let us look briefly at the syllable structure of the language. Towards that end, examine the possessed noun paradigms in (9). The paradigms for 9arat 'bed' and kātāma 'town' show that the possessive suffixes for the second person begin with the velar stop /k/, while those for the third person begin with a vowel. After a vowel-final stem such as kātāma we find that the underlying /k/ has spirantized to x, while the third person suffixes show a glottal stop as a hiatus breaker.

- | | | | | | | |
|-----|--------|-----------|------------|-----------|-----------|-----------|
| (9) | 1sg. | 9arat-āy | kātāma-y | kālb-āy | wadd-āy | mērax-āy |
| | 2sg.m. | 9arat-ka | kātāma-xa | kālb-əxa | wadd-əxa | mērax-ka |
| | 2sg.f. | 9arat-ki | kātāma-xi | kālb-əxi | wadd-əxi | mērax-ki |
| | 3sg.m. | 9arat-u | kātāma-ʔu | kālb-u | wadd-u | mērax-u |
| | 3sg.f. | 9arat-a | kātāma-ʔa | kālb-a | wadd-a | mērax-a |
| | 1pl. | 9arat-na | kātāma-na | kālb-əna | wadd-əna | mērax-na |
| | 2pl.m. | 9arat-kum | kātāma-xum | kālb-əxum | wadd-əxum | mērax-kum |
| | 2pl.f. | 9arat-kən | kātāma-xən | kālb-əxən | wadd-əxən | mērax-kən |
| | 3pl.m. | 9arat-om | kātāma-ʔom | kālb-om | wadd-om | mērax-om |
| | 3pl.f. | 9arat-ən | kātāma-ʔən | kālb-ən | wadd-ən | mērax-ən |
| | | 9arat | kātāma | kālbi | waddi | mērax |
| | | 'bed' | 'town' | 'dog' | 'son' | 'calf' |

Tigrinya syllable structure is quite rigid: only CV and CVC syllables are possible. The hiatus breaking rule can thus be viewed as a reflex of a process that inserts a glottal stop to supply an onset to a syllable that lacks one.

(10)



Let us now turn to the paradigm for *kälbi* in (9), which has the stem /*kälb*/ (cf. *?axaləb* 'dogs'). The final consonant of the stem will form the syllable onset with a vowel initial-suffix (11). Before a consonant-initial suffix such as the *lpl*, we have the underlying representation of (12).

(11)

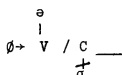


(12)



Due to the rigid syllable canons of the language the stem-final /b/ can appear neither in the coda of the first syllable nor in the onset of the second syllable because onsets and codas can contain at most one consonant in Tigrinya. Let us suppose that there is a universal constraint to the effect that every segment must be affiliated with some syllable in order to be pronounced. Accordingly, a vowel must be added to the CV tier to support the orphaned consonant. We can formulate this rule as one that inserts a supporting schwa vowel after any consonant that has not been linked to a σ node. As a result of the application of the epenthesis rule in (13), the underlying representation of /*kälb+na*/ in (12) will be derived as in (14). We assume that the syllable structure rules of the language apply to the output of epenthesis, constructing a CV syllable out of the inserted vowel and the orphaned consonant.

(13)

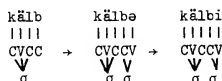


(14)



The epenthesis rule also applies in the derivation of the bare stem form *kälbi* from /*kälb*/. Its application is slightly obscured by a subsequent general rule of Tigrinya phonology that turns schwa to i at the end of a word.

(15)



Note that second person forms such as kālbəxa 'your dog' show that spirantization applies to the output of epenthesis.

Consider now the paradigm for 'son' in (9). Given that geminates are represented as a single consonantal segment linked to two C positions on the CV tier, we see that /wadd/ is equivalent to /kālb/ on the CV tier and hence exhibits exactly the same pattern of syllabification, requiring epenthesis before the consonant-initial suffixes and to the bare stem.

(16)	wad+u N CVCCV ↓ ↓ σ σ	wad+na N CVCCCV ↓ ↓ σ σ	wad N CVCC ↓ σ	underlying representation
	inappl.	wadəna N CVCCVCV ↓ ↓ ↓ σ σ σ	wadə N CVCCV ↓ ↓ σ σ	epenthesis (13)
	inappl.	inappl.	wadi N CVCCV ↓ ↓ σ σ	ə → i / ____ #

It is worth noting the interesting mismatch among the number of elements on each of the three separate tiers in the underlying representation of waddi in (16). There are three units on the segmental tier and due to the syllable canons of the language a σ node can dominate at most three segments. But these two levels of representation are mediated by the CV tier, which contains four elements CVCC. It is precisely this mismatch that invokes the application of the epenthesis rule (13). The parallel behavior of the paradigms for 'dog' and 'son' in (9) is thus our first example of the equivalence of consonant clusters and geminates in Tigrinya phonological structure.

Let us now turn to the paradigm for 'calf' in (9). When combined with a second person possessive suffix (e.g. /mərak+ka/) we have a sequence of identical consonants separated by a morpheme boundary. But unlike in Biblical Hebrew, the first consonant spirantizes in Tigrinya. Underlying /mərak+ka/ is realized as mərax+ka. The second person forms for 'calf' show two things. First, the spirantization rule will have to be able to distinguish underlying geminates in forms such as B verbs like fākkārā from those that arise from morpheme juxtaposition. In terms of the analysis we have proposed, this distinction can be made on the basis of a single unit of the segmental tier associated with two adjacent consonantal positions in the CV tier versus two successive segmental units each of which is associated with a separate unit on the CV tier.

(17)	fākār+ā N CVCCVC V ↓ ↓ ↓ σ σ σ	mərak+ka CVCVC CV ↓ ↓ ↓ σ σ σ
------	---	---

Given these representations, spirantization (7) will apply to the second but not to the first. Secondly, in order to maintain the above distinction, we will have to assume that Leben's Obligatory Contour Principle is in fact a parameter whose setting must be stipulated for individual grammars (operating in Biblical Hebrew but not in Tigrinya).

In the face of these data one might attempt to save the Obligatory Contour Principle in its full generality by claiming that the spirant x in mərax has been lexicalized so that the underlying representation is in fact /mərax/. In general, such an analysis is possible for nouns, since the stem-final consonant never alternates with /k/ due to the relatively stable syllable structure of noun stems. Nevertheless such an analysis would be at odds with the fact that /x/ and /k/ are in complementary distribution phonetically and all instances of /x/ can be derived from /k/ by the natural spirantization rule (7). More importantly, when we turn to the much richer system of the Tigrinya verb, we see that such a restructuring analysis is not possible in any case and thus that the difference between Tigrinya and Biblical Hebrew with respect to the Obligatory Contour Principle is a genuine case of parametric variation.

In the perfect system of the Biblical Hebrew verb the suffixes that mark the first person singular and the second person singular and plural begin with the consonant /t/. Barkai (1974) cites karat:i from /karat+ti/ 'I made a covenant' and šihat:a from /šihet+ta/ 'you masc.sg. corrupted' with spirantization blocked (*karaθ+ti, *šihaθ+ta). As we have seen, it is precisely these forms that led Leben to invoke the Obligatory Contour Principle. In the South Semitic languages, on the other hand, these suffixes begin with a velar stop. The complete paradigms for the perfect of mə-sbar 'to break' and mə-btax 'to cut' are given below.

(17)	3sg.m.	sābār+ā	bātāx+ā
	3sg.f.	sābār+āt	bātāx+āt
	2sg.m.	sābār+ka	bātāx+ka
	2sg.f.	sābār+ki	bātāx+ki
	1sg.	sābār+ku	bātāx+ku
	3pl.m.	sābār+u	bātāx+u
	3pl.f.	sābār+a	bātāx+a
	2pl.m.	sābār+kum	bātāx+kum
	2pl.f.	sābār+kən	bātāx+kən
	1pl.	sābār+na	bātāx+na

Biblical Hebrew and Tigrinya are thus minimally different with respect to the imposition of the Obligatory Contour Principle. In both languages there is a rule spirantizing post-vocalic consonants that must be prevented from applying to geminates; in one language (Biblical Hebrew) the geminates arising from morpheme juxtaposition block spirantization, while in the other (Tigrinya) these geminates undergo spirantization in exactly the same grammatical context.

The only point remaining to be established is that the final radical in bātāx-ā does in fact derive from an underlying stop. Unlike in the noun mərax, the final radical of a Type A verb can be found in a post-consonantal context due to a rule of allomorphy regulating the distribution of the root shapes CACCəC and CACC in the imperfect of all Type A verbs. The latter

shape appears when the root is followed by a vowel and the former shape appears elsewhere. Thus, the 3sg.m. and 3pl.m. imperfect forms of mə-sbar 'to break' are yə-säbbar and yə-säbr-u; the corresponding forms for mə-btax 'to cut' are yə-bättex but yə-bätk-u, with underlying /k/ appearing on the surface. Since all Type A verbs with final radical /k/ show the k-x alternation, we are justified in assuming that the x appearing in the second person perfect forms such as bätāx-ka does indeed derive from an underlying /k/ by the spirantization rule.⁴

To summarize briefly, in this section we have seen that underlying morpheme internal geminates do not spirantize (e.g. fäkkär-ä) while geminates arising across morpheme boundaries are susceptible to this rule (e.g. bätāx-ka from /bätäk+ka/). In the next section we look at geminates that arise from a phonological rule of gemination.

2. Consonant Gemination in Tigrinya

The verb inflection in Tigrinya offers another case of alternation between k and x due to the operation of several complex patterns of gemination arising from the addition of object suffixes to a preceding verbal word. In Tigrinya the object suffixes are the same series of suffixes as the possessive on nouns, except for the lsg., which is -ni on verbs and -äy as a possessive on nouns. For purposes of discussion, the gemination can be broken up into two major subdivisions depending on whether the preceding verbal word ends in a vowel or a consonant.

Let us look at vowel-final stems first. Here there are two basic patterns. In pattern 1 a consonant-initial object suffix is added directly to the stem, while a vowel-initial suffix shows a hiatus breaker: the hiatus breaker is a glottal stop if the stem ends in a, and a glide w if the stem ends in u. (We cite -a 'her' as representative for vowel-initial ob-

(18) 3pl.f. perfect

qätäl+a
[qätäl+a]ʔa
[qätäl+a]xa
[qätäl+a]ni

3pl.m. perfect

qätäl+u
[qätäl+u]wa
[qätäl+u]xa
[qätäl+u]ni

ject suffixes and where possible -ka 2sg.m. and -ni 'me' for consonant-initial obj. suffixes. In some cases the final vowel of the stem is an augment that does not appear on bare verbs.)

In pattern 2 we find that a consonant-initial object suffix will have its initial consonant geminated. For a vowel-initial suffix we find that w is the hiatus breaker if the stem ends in u and y is the hiatus breaker elsewhere, i.e. after a, ä, and ə. The hiatus breaker is also geminated in pattern 2.

(19) 2sg.m. perfect

qätäl+ka
[qätäl+ka]yya
[qätäl+ka]nni

1pl. perfect

qätäl+na
[qätäl+na]yya
[qätäl+na]kka

2sg.f.perfect

qätäl+ki
[qätäl+kə]yya
[qätäl+kə]nni

2sg.f.imperfect

tə+qätl+i
[tə+qätl+ə]yya
[tə+qätl+ə]nni

1sg.gerundive

qätıl+e
[qätıl+ä]yya
[qätıl+ä]kka

3sg.m.gerundive

qätıl+u
[qätıl+u]wwa
[qätıl+u]kka
[qätıl+u]nni

Unlike in possessed nouns, where the hiatus breaker is consistently a glottal stop regardless of the nature of the surrounding vowels (cf.9), the phonetic content of the hiatus breaker in verbs is variable. Accordingly, the rule for verbs can be interpreted as adding an onset on the CV tier that is not associated with a phonological unit.

(20) $\emptyset \rightarrow C / [_ _ V$

Since there are no adjacent consonants from which the inserted onset can acquire a phonetic content, one of the adjacent vowels must contribute a feature to the consonantal onset. In Tigrinya the quality of the hiatus breaker is determined by the preceding rather than by the following vowel. (An informal survey of hiatus breaking in the languages known to me suggests that this is the unmarked case and is presumably a reflection of the general tendency for unassociated "anchors" to link to an autosegment on the left instead of the right (cf. Clements 1981)). The inserted onset is w if the preceding vowel is u (i.e. [+round]) and y elsewhere (i.e. if the preceding vowel is [-round]). I will thus assume that the appearance of the inserted onset as w versus y is a reflex of linkage to the preceding vowel, as indicated by the dashed lines in the partial derivations for [qätıl+u]wwa, [qätäl+kə]yya and [qätäl+na]yya below.

(21)	[qätıl+u]a	[qätäl+kə]a	[qätäl+na]a	
	CVCVC V V	CVCVC CV V	CVCVC CV V	underlying rep.
	$\begin{array}{c} \vee \vee \vee \\ \sigma \sigma \sigma \sigma \end{array}$	$\begin{array}{c} \vee \vee \vee \\ \sigma \sigma \sigma \sigma \end{array}$	$\begin{array}{c} \vee \vee \vee \\ \sigma \sigma \sigma \sigma \end{array}$	
	[qätıl+u]a	[qätäl+kə]a	[qätäl+na]a	
	f.	f.	f.	
	CVCVC VCV	CVCVC CVCV	CVCVC CVCV	hiatus breaking (20)
	$\begin{array}{c} \vee \vee \vee \vee \\ \sigma \sigma \sigma \sigma \end{array}$	$\begin{array}{c} \vee \vee \vee \vee \\ \sigma \sigma \sigma \sigma \end{array}$	$\begin{array}{c} \vee \vee \vee \vee \\ \sigma \sigma \sigma \sigma \end{array}$	

The gemination process can be viewed as simply the reflex of a rule that increases the length of the stem-final syllable from one to two moras by inserting a postvocalic consonant on the CV tier to give a CVC syllable. This inserted C will link to the following consonantal element of the segmental tier without stipulation on the reasonable assumption that a C slot will link to an adjacent consonant of the segmental tier when one is available.

The rule of gemination may thus be expressed as in (22).

- (22) $\emptyset \rightarrow C / V __\alpha$ [+segment] (α =syllable, α =verb)

We assume that the object suffixes are adjoined to the verb so that the structure of the complex word is [[verb]]. The rule is thus to be interpreted

as increasing the length of the stem-final syllable of a verb by one mora when that syllable is followed by a suffix (i.e. by phonological material indicated by the feature [+segment]). Rule (22) thus converts the underlying representation [qätıl+u]ni into [qätıl+u]nni as indicated in (23).

- (23) $\begin{array}{ccc} \text{[qätıl+u]ni} & & \text{[qätıl+u]ni} \\ \text{||||| | ||} & & \text{||||| |.||} \\ \text{CVCVC V CV} & \rightarrow & \text{CVCVC VCCV} \\ \downarrow \downarrow \downarrow \downarrow & & \downarrow \downarrow \downarrow \downarrow \\ \sigma \sigma \sigma \sigma & & \sigma \sigma \sigma \sigma \end{array}$

When there is no adjacent consonantal element on the segmental tier for the C inserted by (22) to link to, we must assume that it will link to the preceding vowel by the logic of our earlier treatment of the hiatus breaker. The derivations for [qätıl+u]wva, [qätäl+kə]yya, and [qätäl+na]yya are thus completed by the application of gemination (22) to the representations in (21).

- (24) $\begin{array}{ccc} \text{[qätıl+u]a} & \text{[qätäl+kə]a} & \text{[qätäl+na]a} \\ \text{||||| F. |} & \text{||||| |F. |} & \text{||||| |F. |} \\ \text{CVCVC VCV} & \text{CVCVC CVCV} & \text{CVCVC CVCV} \\ \downarrow \downarrow \downarrow \downarrow & \downarrow \downarrow \downarrow \downarrow & \downarrow \downarrow \downarrow \downarrow \\ \sigma \sigma \sigma \sigma & \sigma \sigma \sigma \sigma & \sigma \sigma \sigma \sigma \end{array} \quad \text{hiatus breaking (20)}$
- $\begin{array}{ccc} \text{[qätıl+u]a} & \text{[qätäl+kə]a} & \text{[qätäl+na]a} \\ \text{||||| /A |} & \text{||||| //A |} & \text{||||| //A |} \\ \text{CVCVCVCCV} & \text{CVCVCVCCV} & \text{CVCVCVCCV} \\ \downarrow \downarrow \downarrow \downarrow & \downarrow \downarrow \downarrow \downarrow & \downarrow \downarrow \downarrow \downarrow \\ \sigma \sigma \sigma \sigma & \sigma \sigma \sigma \sigma & \sigma \sigma \sigma \sigma \end{array} \quad \text{gemination (22)}$

Now what about the forms in pattern 1 (18) where we find no gemination? According to Leslau (1939) the final vowels in these verb forms derive from etymological long vowels. In present-day Tigrinya phonetics a and ä are shorter than all other vowels, but this is the only consistent length difference. In particular, there is no discernible phonetic difference between the final vowel in pattern 1 qätäl+a (3pl.f.perfect) versus pattern 2 qätäl+na (1pl. perfect) nor between pattern 1 qätäl+u (3pl.m. perfect) and pattern 2 qätıl+u (3sg.m. gerundive). Hence the pattern 1 forms will have to be marked as morphological exceptions to the gemination rule (22). Nevertheless if Leslau is correct in tracing these vowels back to etymological long vowels, it is clear why rule (22) would not have applied in these categories: their final syllables would already be long.

We can now turn to the second subdivision in the overall pattern of gemination--verbs that end in a consonant. Here what we find is that the final consonant of the stem is geminated if it is preceded by a vowel and the following suffix begins with a vowel. But if the suffix begins with

a consonant or the stem ends in two consonants (e.g. 3sg.m. imperfect [yē+qätl]a 'he kills her'), then no phonological change takes place.

- | | | |
|------|---|---|
| (25) | <u>3sg.m. jussive</u>
yē+qtäl
[yē+qtäl]a
[yē+qtäl]ka | <u>3sg.f. perfect</u>
qätäl+ät
[qätäl+ätt]a |
|------|---|---|

The gemination rule (22) that lengthens the final syllable of the verb stem by one mora automatically explains these forms. It will fail to apply in [yē+qätl]a and [yē+qtäl]ka since the stem-final syllable is closed, but will apply in [yē+qtäl]a and [qätäl+ätt]a, since the stem-final syllable is open.⁵

- | | | | |
|---------------|---|--|---------------------------|
| (26) | [yē+qtäl]ka

CV CCVC CV
↙ ↘ ↘
σ σ σ | [yē+qtäl]a

CV CCVC V
↙ ↘ ↘
σ σ σ | underlying representation |
| inapplicable. | [yē+qtäl]a

CV CCVC CV
↙ ↘ ↘
σ σ σ | gemination (22) | |

Having analyzed the gemination process, we can now turn to its bearing on spirantization. When the 2sg.m. object suffix /ka/ is added to a stem that triggers the gemination rule, an extra C slot will be added to which the initial k of the suffix will be linked creating a branching structure which will escape spirantization (7). Thus, [qätäl+na]kka is derived from [qätäl+na]ka as in (27).

- | | | | |
|------|--|---|---|
| (27) | [qätäl+na]ka

CVCVC CV CV
↙ ↘ ↘
σ σ σ | → | [qätäl+na]ka
 '
CVCVC CVCCV
↙ ↘ ↘
σ σ σ |
|------|--|---|---|

Now what about the jussive form of a stem ending in an underlying velar? Our formulation of gemination predicts that a branching structure will result here as well and so no spirantization should occur. In fact, this is correct. Compare the jussive forms of mā-btāx 'sever'.

- | | | |
|------|---|---|
| (28) | 3sg.m. jussive yē-btāx
3pl.m. jussive yē-btāx-u
3sg.m. jussive [yē-btākk]o
+3sg.m. object | 'let him sever'
'let them sever'
'let him sever it' |
|------|---|---|

In terms of our analysis yē-btāx-u and [yē-btākk]o receive the derivations in (29).

- (29) $yə+btāk+u$ $[yə+btāk]o$ underlying representation
 || |||| |
 CV CCVC V
 ↓ ↓ ↓
 σ σ σ
- inapplic. $[yə-btāk]o$ gemination (22)
 || |||| |
 CV CCVCV
 ↓ ↓ ↓
 σ σ σ
- $yə-btāk+u$ inapplic. spirantization (7)
 || |||| |
 CV CCVC V
 ↓ ↓ ↓
 σ σ σ

3. Complete Assimilation

Let us now turn to the final source of geminate consonants in Tigrinya--those arising from a rule of complete consonant assimilation. The first case of this type occurs in the passive. Compare the active and passive 3sg.m. forms of the pattern A verb rāxābā 'find'.

- | | | | |
|------|------------|---------------|----------------|
| (30) | | <u>active</u> | <u>passive</u> |
| | perfect | rāxābā | tārāxba |
| | gerundive | rāxibu | tārāxibu |
| | imperfect | yērākkəb | yērəkkāb |
| | jussive | yərkāb | yərrāxāb |
| | imperative | rəxāb | tārāxāb |

The passive is marked by the prefix tā- in the perfect, gerundive, and imperative, and by the gemination of the root-initial consonant in the jussive and imperfect. A reasonable hypothesis is that the passive morphology in the jussive and imperfect consists of the prefix /t-/ placed between the root and the person prefix and thus that jussive yərrāxāb arises from /yə+t+rākāb/. The absence of surface gemination in the imperfect of Type A verbs (yērəkkāb) is phonologically governed, as can be seen by a comparison of the passive forms for type B, C, and quadriradical verbs.

- | | | | | |
|------|------------|---------------|---------------|----------------------|
| (31) | | <u>Type B</u> | <u>Type C</u> | <u>Quadriradical</u> |
| | perfect | tābāddālā | tābarāxā | tāmāskārā |
| | gerundive | tābāddilu | tābarixu | tāmāskiru |
| | imperfect | yəbāddāl | yəbbarāx | yəməskār |
| | jussive | yəbbāddāl | yəbbarāx | yəmmāskār |
| | imperative | tābāddāl | tābarāx | tāmāskār |
| | | 'change' | 'bless' | 'witness' |

A type C verb does show gemination in the passive imperfect (yəbbarāx). We can account for the superficial absence of gemination in the passive imperfect of types A, B, and quadriradical verbs by invoking a special rule to degeminate the stem-initial geminate if the following syllable ends in a consonant. The rule will take the form of deleting a C element from the CV tier when followed by a closed syllable.

- (32) $C \rightarrow \emptyset / \begin{matrix} \alpha \\ \nearrow \end{matrix} \begin{matrix} [+cons] \\ CVC \end{matrix}$ (α =passive imperfect)

Note that this is another case where geminates pattern with consonant clusters in the phonology of Tigrinya.

There are two pieces of evidence in favor of this approach. First, the stem-initial geminate posited as an intermediate stage in the derivation of the passive imperfect does show up in the frequentative of all verbs. The frequentative is formed by infixing a syllable of the shape Ca before the second radical of the root, with C= the second radical: e.g. sābārā and sābiru have the frequentative forms sābabārā and sābabirū respectively. Since this operation opens the stem-initial syllable, the geminate posited as an intermediate stage in the derivation of the passive imperfect may appear on the surface. Compare the passive frequentative gerundive and imperfect forms of the following type A, B, and C verbs in (33).

- (33)
- | | | | |
|-----------|-------------|--------------|-------------|
| gerundive | tā-sābabirū | tā-bādaddilū | tā-bārarixū |
| imperfect | yə-ssābabār | yə-bbādaddāl | yə-bbārarāx |

Secondly, there is a phonetic constraint in Tigrinya that the gutturals [ḥ, ʁ, h, ʔ] may not appear geminate. These consonants only appear as short. When one of these consonants occupies the second radical position in the passive imperfect, we find that the stem-initial geminate appears: cf. yə-ssəḥab 'he is pulled' from the verb səḥabā 'pull'.

There are thus good reasons for supposing that the stem-initial short consonant in the passive imperfect yə-rəkkāb derives from /yə-rəkkāb/ by the special degemination rule (32). Now what of the rule completely assimilating the passive prefix /t-/ ? In a theory which treats phonological structure as a single linear string of feature matrixes the rule would be given the formulation in (34).

- (34) $t \rightarrow [\alpha F's] / \begin{matrix} \alpha \\ \nearrow \end{matrix} \begin{matrix} C \\ [+passive] \end{matrix}$ [$\alpha F's$]

But given the multi-linear representation of the syllable adopted in this study, another formulation of the rule is possible--namely to delete the [t] of the passive morpheme from the segmental tier, leaving an unassociated C slot on the CV tier.

- (35) $t \rightarrow \emptyset / \begin{matrix} \alpha \\ \nearrow \end{matrix} \begin{matrix} [+cons] \\ [+passive] \end{matrix}$

By general autosegmental principles of reassociation (Clements 1981), this C slot will then link to the following consonant of the segmental tier. In terms of this analysis the passive imperfect yə-rəkkāb and jussive yə-rṛāxāb receive the derivations in (36).

(36)	$ \begin{array}{c} y\dot{a}+t+r\ddot{a}k\ddot{a}b \\ \quad \quad \backslash \backslash \\ CV \quad C \quad CVCCVC \\ \downarrow \quad \downarrow \quad \downarrow \\ \sigma \quad \sigma \quad \sigma \end{array} $	$ \begin{array}{c} y\dot{a}+t+r\ddot{a}k\ddot{a}b \\ \quad \quad \\ CV \quad C \quad CVVCVC \\ \downarrow \quad \downarrow \quad \downarrow \\ \sigma \quad \sigma \quad \sigma \end{array} $	underlying representation
	$ \begin{array}{c} y\dot{a}+ \quad r\ddot{a}k\ddot{a}b \\ \quad \quad \backslash \backslash \\ CV \quad CCVCVCVC \\ \downarrow \quad \downarrow \quad \downarrow \\ \sigma \quad \sigma \quad \sigma \end{array} $	$ \begin{array}{c} y\dot{a}+ \quad r\ddot{a}k\ddot{a}b \\ \quad \quad \\ CV \quad CCVCVCVC \\ \downarrow \quad \downarrow \quad \downarrow \\ \sigma \quad \sigma \quad \sigma \end{array} $	passive deletion (35)
	$ \begin{array}{c} y\dot{a}+ \quad r\ddot{a}k\ddot{a}b \\ \quad \quad \backslash \backslash \\ CV \quad CVCCVCVC \\ \downarrow \quad \downarrow \quad \downarrow \\ \sigma \quad \sigma \quad \sigma \end{array} $	inapplic.	degemination (32)
	inapplic.	$ \begin{array}{c} y\dot{a}+ \quad r\ddot{a}x\ddot{a}b \\ \quad \quad \\ CV \quad CCVCVCVC \\ \downarrow \quad \downarrow \quad \downarrow \\ \sigma \quad \sigma \quad \sigma \end{array} $	spirantization (7)

These two possible formulations of the complete assimilation rule (i.e. 34 and 35) thus differ in terms of the formal structure assigned to the geminate r in /y~~a~~r~~a~~kk~~a~~b/: r r versus r. We have seen that the Tigrinya rule

$$\begin{array}{c}
 | \quad | \\
 C \quad C \quad \quad \quad \wedge \\
 \quad \quad \quad C \quad C
 \end{array}$$

of spirantization is sensitive to precisely this difference in structure, applying in the former case, but blocked in the latter. The spirantization process can thus be exploited to test which of the alternative formulations of the complete assimilation is correct. It turns out that it is the second one that must be assumed to operate in Tigrinya. Geminate stops arising from (35) fail to spirantize (unless they have been degeminated by rule (32)). This is shown by the 3sg.m. forms in (37).

(37)	active perfect	kāfātā	kāhasā	kālkālā
	passive perfect	tāxāftā	tāxāhsā	tāxālkālā
	passive gerundive	tāxāfitu	tāxāhisu	tāxālkilu
	passive imperfect	yexəffāt	yəkkəhas	yəxəlkāl
	passive jussive	yəkkāfāt	yəkkāhas	yəkkālkāl
		'open'	'pay retri-	'prohibit'
			bution'	

The passive imperfect and jussive forms of yəxəffāt and yəkkāfāt are thus derived as follows.

(38)	$\begin{array}{c} \text{yə+t+käfät} \\ \quad \quad \backslash \backslash \backslash \\ \text{CV} \quad \text{C} \quad \text{CVCCVC} \\ \downarrow \quad \downarrow \quad \downarrow \\ \sigma \quad \sigma \quad \sigma \end{array}$	$\begin{array}{c} \text{yə+t+käfät} \\ \quad \quad \\ \text{CV} \quad \text{C} \quad \text{CVCVC} \\ \downarrow \quad \downarrow \quad \downarrow \\ \sigma \quad \sigma \quad \sigma \end{array}$	underlying representation
	$\begin{array}{c} \text{yə+ käfät} \\ \quad \quad \backslash \backslash \backslash \\ \text{CV} \quad \text{CCVCCVC} \\ \downarrow \quad \downarrow \quad \downarrow \\ \sigma \quad \sigma \quad \sigma \end{array}$	$\begin{array}{c} \text{yə+ käfät} \\ \quad \quad \\ \text{CV} \quad \text{CCVCCVC} \\ \downarrow \quad \downarrow \quad \downarrow \\ \sigma \quad \sigma \quad \sigma \end{array}$	passive deletion (35)
	$\begin{array}{c} \text{yə+ käfät} \\ \quad \backslash \backslash \backslash \\ \text{CV} \quad \text{CVCCVC} \\ \downarrow \quad \downarrow \quad \downarrow \\ \sigma \quad \sigma \quad \sigma \end{array}$	inapplic.	degemination (32)
	$\begin{array}{c} \text{yə+ xəfät} \\ \quad \backslash \backslash \backslash \\ \text{CV} \quad \text{CVCCVC} \\ \downarrow \quad \downarrow \quad \downarrow \\ \sigma \quad \sigma \quad \sigma \end{array}$	inapplic.	spirantization (7)

Note that we cannot maintain rule (34) by simply ordering spirantization before (34) since spirantization must follow degemination (32) and degemination must follow the rule assimilating (or deleting) the passive morpheme (i.e. (34) or (35)).

There is one other rule of complete assimilation operative in Tigrinya that permits a similar test with respect to the spirantization rule. In contrast to the rule for the passive prefix, this rule is not morphologically restricted and even operates (optionally) across word boundaries. By this rule /g/ and /q/ assimilate completely to a following /k/, giving a geminate /kk/. This geminate does not spirantize. Compare the possessed paradigms for ?a?dug (plural of ?adgi 'donkey', sanduq 'box', and merax 'calf' (from /merak/)). The symbol \hat{q} stands for the spirantized realization of /q/ produced by (7).

(39)	1sg.	?a?dug-äy	sanduq-äy	merax-äy
	2sg.m.	?a?duk-ka	sanduk-ka	merax-ka
	2sg.f.	?a?duk-ki	sanduk-ki	merax-ki
	3sg.m.	?a?dug-u	sanduq-u	merax-u
	3sg.f.	?a?dug-a	sanduq-a	merax-a
	1pl.	?a?dug-na	sanduq-na	merax-na
	2pl.m.	?a?duk-kum	sanduk-kum	merax-kum
	2pl.f.	?a?duk-kən	sanduk-kən	merax-kən
	3pl.m.	?a?dug-om	sanduq-om	merax-om
	3pl.f.	?a?dug-än	sanduq-än	merax-än

?a?dug käfilu ~ ?a?duk käfilu 'he payed (in) donkeys'
 sanduq käfitu ~ sanduk käfitu 'he opened a box'
 merax käfilu ~ *merak käfilu 'he payed a calf'

The contrasting behavior of the 2sg.m. forms ?a?duk-ka (from /?a?dug+ka/) and sanduk-ka (from /sandug+ka/) versus mərax-ka (from /mərak+ka/) can be explained if we assume that the rule of complete assimilation for the velars involves the deletion of [g,q] before [k] on the segmental tier, leaving behind an unassociated C slot on the CV tier, which then associates with the following /k/ of the possessive suffix.

(40)	?a?dug+ka II CVCCVC CV V V V σ σ σ	sandug+ka II CVCCVC CV V V V σ σ σ	mərak+ka II CVCVC CV V V V σ σ σ	underlying representation
	?a?du +ka .II CVCCVC CV V V V σ σ σ	sandu +ka .II CVCCVC CV V V V σ σ σ	inapplic.	[g,q] + ∅ / __k
	inapplic.	inapplic.	mərax+ka II CVCVC CV V V V σ σ σ	spirantization (7)

Conclusion

In this paper we have reviewed some evidence from Tigrinya which supports the view that quantity distinctions are best represented in terms of the relationship between the segmental tier and the CV tier. Specifically, we have seen that Tigrinya makes a distinction between the first three of the four possible relations that can exist between successive units of the two tiers.

(41)	k	k	k k	(k k ?)
C	C C	C C	C	

(It is an interesting question if evidence will ever be found for the fourth type of case. There are of course many examples in which two successive segmental elements count as single units of quantity (e.g. affricates, diphthongs, etc.). But I am not aware of any cases in which these can be argued to derive from underlying sequence of identical phonological segments.) Theories of phonology in which phonological structure is described solely in terms of the inventory and linear arrangement of phonological elements are in principle incapable of making this kind of distinction and hence Tigrinya spirantization can be taken as strong support for the multilinear view of phonological structure.

NOTES

¹Leben (1980) actually assumed that phonological segments were mapped to terminal nodes in the syllable tree labeled strong and weak. We follow more recent developments in the theory of syllable structure (in particular Clements and Keyser 1981) in assuming that phonological segments are mapped to the CV tier which in turn is organized into syllables. We do not take any stand in this paper on whether it is necessary to assume that subconstituents of the syllable such as rime, onset, or coda are represented in terms of labeled nodes in the tree.

²The research on Tigrinya reported in this study was conducted during the 1979-1980 academic year. I should like to acknowledge the patient assistance of Efrem Mehretab who served as my consultant. A recent paper by Schein (1981) independently reaches conclusions similar to mine on the relevance of the Tigrinya spirantization rule to the analysis of geminate consonants.

³Spirantization also applied, though less systematically, to /b/ in the speech of my consultant. This paper is limited to the discussion of spirantization as it affects just the velars. It should be noted that spirantization is not a neutralization rule in Tigrinya. All occurrences of the velar spirants x and q can be derived from /k/ and /q/ by the spirantization rule.

⁴When the middle radical of a type A verb is a velar, it will show the stop-spirant alternation in the imperfect: e.g. mə-rkab 'to find' has the 3sg.m. and 3pl.m. imperfect forms yə-räkkəb and yə-räxb-u respectively.

⁵There is a minor technical problem concerning the proper application of the gemination rule to these forms. Recall that the intuition underlying our analysis is that the stem-final syllable is increased by one mora from CV to CVC when the verbal word is followed by an object suffix. The problem is that the notion "stem-final syllable" mixes notions from two distinct categories: "stem" is a grammatical notion while "syllable" is a prosodic one. These notions correspond in a representation such as [qätıl+u]ni (which appears as qätılunni), since the syllable that gets increased by one mora does exhaust the final portion of the stem. But in a representation such as [yə-qtäl]a (which appears as yə-qtälla) the end of the stem and the final syllable of the stem do not coincide, since the stem-final segment l is an onset to the following syllable whose nucleus is the suffixal vowel. This problem is not of course particular to our analysis alone but will arise whenever a rule makes reference to a stem-terminal syllable that does not happen to coincide with the stem exactly (e.g. rules syncopating a stem-final open syllable or stressing a stem-final syllable).

An alternative description of Tigrinya gemination that avoids this particular problem is available within the general theoretical framework of our analysis. On this analysis the C slots arising from our rules

of gemination (22) and hiatus breaking (20) would instead be treated as unassociated C slots in the underlying representation of the relevant verbal suffixes and object suffixes respectively. Thus, in this approach a verbal stem terminating in a pattern 2 suffix such as the 3sg.m. gerundive *qätıl+u* would have the underlying representation of (ia), while an object suffix such as the 3sg.f. /-a/, which we have treated as vowel-initial, would be analyzed as containing an unassociated C onset in the underlying representation, as in (ib).

- (i) a. *qätıl+u* b. *a*
- | | |
|---|---|
| | |
| CVCVC VC | C V |
| $\begin{array}{c} \vee \quad \vee \quad \vee \\ \sigma \quad \sigma \quad \sigma \end{array}$ | $\begin{array}{c} \vee \\ \sigma \end{array}$ |

When a pattern 2 stem combines with a suffix containing an underlyingly associated onset we get gemination, as in (iia). And when a suffix with an underlyingly unassociated onset combines with a stem ending in a single consonant, we get gemination of the stem-final consonant, as in (iib). Finally, when a stem ending in an underlyingly unassociated consonant is combined with a suffix containing an underlyingly unassociated onset, we get both C slots mapped to the preceding vowel, just as in our original analysis (iic).

- (ii) a. [*qätıl+u*] ni b. [*qätäl+ät*] a c. [*qätıl+u*] a
- | | | |
|---|---|---|
| . | . | . |
| CVCVC VC CV | CVCVC VC CV | CVCVC VC CV |
| $\begin{array}{c} \vee \quad \vee \quad \vee \quad \vee \\ \sigma \quad \sigma \quad \sigma \quad \sigma \end{array}$ | $\begin{array}{c} \vee \quad \vee \quad \vee \quad \vee \\ \sigma \quad \sigma \quad \sigma \quad \sigma \end{array}$ | $\begin{array}{c} \vee \quad \vee \quad \vee \quad \vee \\ \sigma \quad \sigma \quad \sigma \quad \sigma \end{array}$ |
| (qätılunni) | (qätälätta) | (qätıluwwa) |

On this analysis a pattern 1 suffix such as the 3plm.perfect that evokes no gemination can be represented as not containing an unassociated underlying C slot.

- (iii) a. [*qätäl+u*] ni b. [*qätäl+u*] a
- | | |
|---|---|
| | . |
| CVCVC V CV | CVCVC V CV |
| $\begin{array}{c} \vee \quad \vee \quad \vee \quad \vee \\ \sigma \quad \sigma \quad \sigma \quad \sigma \end{array}$ | $\begin{array}{c} \vee \quad \vee \quad \vee \quad \vee \\ \sigma \quad \sigma \quad \sigma \quad \sigma \end{array}$ |
| (qätäluni) | (qätäluwa) |

While this alternative analysis would appear to avoid the problem our gemination rule has in making proper reference to the notion "stem", it nevertheless faces problems of its own. First, there are rules of the morphology regulating the distribution of vowel augments that are sensitive to whether the following object suffix begins with a consonant or vowel. These rules consistently treat as vowel-initial the object suffix that the alternative analysis represents with an underlying unassociated consonantal onset on the CV tier. For example, the 3sg.m. imperfect stem /yə+qätl/ takes the augment /ä/ before consonant-initial suffixes (and being a pattern 2 vowel, the augment induces gemination of the following consonant): e.g. *yə+qätl+ä+nni*.

But before vowel-initial suffixes no augment appears: $y\acute{e}+q\acute{a}tl+a$. Thus, under the alternative analysis we will have to say that the distribution of the augment is determined by the segmental level (in effect ignoring the underlying unassociated onset of the 3sg.f. object suffix) appearing before [+consonantal] segments, but absent before [+vocalic] segments. But then the underlying representation for $y\acute{e}+q\acute{a}tl-a$ will appear as in (iv), with three successive C-slots on the CV tier.

(iv) $[y\acute{e}+q\acute{a}tl] \ a$
 || ||||| |
 CV CVCC CV
 V V V

We have seen that Tigrinya has a rule of epenthesis that applies in exactly this environment, converting CCC to CCaC. Why doesn't this rule apply in (iv)? The alternative analysis thus requires an ad hoc rule to delete the underlyingly unassociated onset slot from the segmentally vowel-initial suffixes precisely in the environment where an independently motivated rule of the language should apply. The original analysis of the text does not face this problem since it treats the suffix as vowel-initial on both the segmental and the CV tier. The final consonant of the stem forms an onset to the syllable whose nucleus contains the suffixal vowel and the gemination rule fails to apply since the stem-final syllable is heavy.

(v) $[y\acute{e}+q\acute{a}tl] \ a$
 || ||||| |
 CV CVCC V
 V V V
 σ σ σ

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TONE-BEARING NASALS IN MAKUA*

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and

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This paper examines the tonological status of nasal consonants (specifically, pre-consonantal nasals) in two dialects of Makua, a Bantu language spoken in Mozambique and Tanzania. We demonstrate that nasals derived from sequences consisting of a nasal followed by a vowel regularly function as "tone-bearing" units in both of the dialects examined. On the other hand, nasals which cannot (synchronically at least) be shown to derive from nasal plus vowel sequences do not exhibit such uniformity in their behavior. In the Ikorovere dialect, most such non-derived pre-consonantal nasals are not tone-bearing, but there are certain exceptional cases; in the Imithupi dialect, there are many more cases of tone-bearing non-derived pre-consonantal nasals. A comparison of the two dialects reveals in part at least how the present-day situation came into being. On the basis of the data presented, we conclude that in Makua one cannot synchronically predict whether a given nasal consonant is tone-bearing or not. Consequently, the notion "tone-bearing" is not characterizable in purely phonetic terms, but instead represents a more abstract concept.

In the autosegmental approach to the analysis of tone, tonal specifications (henceforth, "tones") are located on one tier of the phonological representation (the "tonal tier") and are associated, by means of "association lines," with units on another tier (the "tone-bearing units"). Although it has sometimes been proposed in the literature on tone that the syllable is the tone-bearing unit, within the autosegmental framework it has been more common to find vowels and syllabic nasals being identified as the tone-bearing units. (Of course, insofar as each syllable has one and only one vowel or syllabic nasal, the two approaches may be indistinguishable.) The present paper explores the notion "tone-bearing" as it pertains to the tonological structure of Makua, a Bantu language spoken in northern Mozambique and southern Tanzania. In particular, we will be concerned in detail with the tonological status of pre-consonantal nasal consonants in two dialects of Makua--Ikorovere and Imithupi.¹ We will argue that there are two classes of tone-bearing units in Makua: vowels and pre-consonantal nasals. However, not all pre-consonantal nasals are tone-bearing, and it is not possible to predict in all cases which ones are tone-bearing and which ones are not. In other words, the distinction between tone-bearing and non-tone-bearing must be included as part of the underlying representation and cannot be derived from any independent phonological fact. (It should be noted that none of the pre-consonantal nasals discussed in this paper are syllabic consonants.)

In our discussion of the notion "tone-bearing" in Makua it will be necessary to refer to a number of principles of Makua tonology without providing a complete exposition of these principles. For additional discussion, the interested reader is referred to Cheng and Kisseberth (1979, 1980, and 1981). A complete description of Makua phonology and morphology is under preparation.

The cornerstone of Makua tonology is a principle that we refer to as High Tone Doubling (HTD). This rule simply says that a high tone associated with one tone-bearing unit is also manifested on the immediately following tone-bearing unit. We shall refer to the first high tone in the resulting pair of high tones as the "primary high" and the second as the "doubled high". The primary high may either be (a) an unpredictable fact about the pronunciation of a given lexical item or grammatical formative that must be included as an idiosyncratic part of the underlying phonological representation or (b) a predictable aspect of the pronunciation that can be assigned to the phonological representation by virtue of a rule (the rules in question being triggered by morphological considerations rather than strictly phonological factors). The doubled high, of course, is not part of the underlying representation but simply the reflex of HTD. The doubled high is not, however, phonetically manifested in all environments since there are two tonological principles that delete the doubled high. A rule of Phrase-Final Lowering (PFL) lowers a doubled high when it occurs at the end of a phrase. A rule of Long Fall (LF) lowers a doubled high on the second of two consecutive tone-bearing units when it is followed by just one additional tone-bearing unit in the phrase. The rules of HTD, PFL, and LF are common to both Ikorovere and Imithupi. Imithupi exhibits two additional phenomena. The Short Fall (SF) rule converts the doubled high into a falling tone when the doubled high is followed by just one tone-bearing unit in the phrase. (Note that the difference between LF and SF is that the former rule affects only the doubled high on the second of two successive tone-bearing units whereas the latter rule affects a doubled high even if it is not immediately preceded by another tone-bearing unit.) The Mid-Tone (MT) rule converts a primary high to mid when it is (a) not preceded by a high and (b) neither followed by a high on an immediately adjacent tone-bearing unit nor followed by a low on the next tone-bearing unit (immediately adjacent or not).

Let us now illustrate the rules mentioned above (HTD, PFL, LF, SF, and MT) and, in so doing, demonstrate that vowels must be included in the category of tone-bearing units in Makua. Consider the following examples from Ikorovere:

- | | | |
|-----|--------------------|-------------------------|
| (1) | ki-no-vāh-ā... | 'I'm giving s.t. away' |
| | ki-no-lúú-l-a... | 'I'm spitting s.t. out' |
| | ki-no-thúú-mh-a... | 'I'm selling s.t.' |

In these examples, as well as in all other examples, three dots after a citation indicate that the pronunciation given is the one appropriate for phrase-internal position. The absence of dots at the end of a citation indicates that the pronunciation is appropriate for phrase-final position. The examples in (1) illustrate one of the verb tenses where a primary high tone is assigned to the first vowel of the verb stem. The primary high tone induces a doubled high on the following tone-bearing unit. In the case of

ki-no-vāh-ā... the doubled high appears on the /a/ vowel which occurs at the end of this and many other verbal constructions in Makua. In the case of ki-no-lúú-l-a... the doubled high appears on the second mora of the long vowel in the stem /luul/. In the case of ki-no-thúmíh-a... the doubled high appears on the second vowel of the stem /thumih/; the second vowel of this stem can be analyzed readily as part of the causative morpheme /ih/.

The examples in (1) illustrate a couple points. First, given that a primary high tone is located on a particular vowel, the doubled high will occur on the next tone-bearing unit regardless of the morphological relationship of that unit to the unit bearing the primary high. Thus the high tone on the first stem vowel in the /no/ tense doubles onto the grammatical elements /a/ and /ih/ as well as onto a root element in the case of /luul/. Second, the data in (1) show that the tone-bearing unit in Makua is the vowel rather than the syllable. This fact is demonstrated by the example ki-no-lúú-l-a... If the tone-bearing unit were the syllable, then we would expect a high tone to be associated with the first syllable of the stem and then to double onto the following syllable. But this is not what happens. Rather, the high tone is associated with the first vowel of the stem and doubles onto the second vowel, even when that vowel is part of the same syllable as the first. (Note that in Makua two successive identical vowels belong to the same syllable and are pronounced simply as one long vowel.)

Analogous examples from Imit^hupi are given in (2).

- | | | |
|-----|------------------|---------------------|
| (2) | ki-no-cīs-ā... | 'I'm carrying s.t.' |
| | ki-no-wífh-a... | 'I'm bringing s.t.' |
| | ki-no-hūkúl-a... | 'I'm sieving s.t.' |

These examples differ from Ikorovere only in terms of the effects of the application of MT. Recall that in Imit^hupi a primary high is realized as mid when it is not preceded by a high and not followed by either a high on an immediately adjacent tone-bearing unit or a low on the next tone-bearing unit (adjacent or not). Thus the primary high in ki-no-cīs-ā... and ki-no-hūkúl-a... is realized as mid since it is preceded by a low and followed by a high (that is not on an immediately successive tone-bearing unit). On the other hand, the primary high in ki-no-wífh-a... is blocked from undergoing MT since it is followed by a high on an immediately adjacent tone-bearing unit.

Another verbal construction is illustrated in (3). These data are from Ikorovere.

- | | | | |
|-----|-------------------|----------------|-----------------------|
| (3) | ki-nōō-līm-ā... | ki-nōō-līm-a | 'I'm cultivating' |
| | ki-nōō-típūr-a... | ki-nōō-típūr-a | 'I'm hoeing deeply' |
| | ki-nōō-lēēh-a... | ki-nōō-lēēh-a | 'I'm saying farewell' |

The tense marker here is /noo/ and it has a primary high tone located on its first mora. A doubled high appears on the second mora of /noo/. In this construction, as in the /no/ tense, a primary high tone is assigned to the first vowel of the verb stem. The primary high tone doubles onto the vowel that follows the first stem vowel. The left-hand column, which reflects the phrase-medial pronunciation of these verbs, shows the effects of HTD clearly. The right-hand column, which reflects the phrase-final

pronunciation of these forms, manifests the application of PFL (in the case of ki-nōō-līm-a) and LF (in the case of ki-nōō-lēeh-a). Recall, PFL requires that a doubled high lower if on a phrase-final vowel, and LF requires that a doubled high lowers if it is located on the second of two adjacent tone-bearing units when there is just one more tone-bearing unit in the phrase. Note that the doubled high in ki-nōō-tīpūr-a does not undergo either PFL or LF since it is not located on a phrase-final vowel nor is it located on the second of two successive tone-bearing units.

Comparable data from Imith^hupi are cited in (4).

- | | | | |
|-----|--------------------|------------------------------|----------------|
| (4) | ki-nōō-rúp-ā... | ki-nōō-rúp-a | 'I'm sleeping' |
| | ki-nōō-tērēkh-a... | ki-nōō-tērāk ^h -a | 'I'm cooking' |
| | ki-nōō-wīh-a... | ki-nōō-wīh-a | 'I'm bringing' |

These data differ from those in Ikorovere only in showing the effect of SF in the case of ki-nōō-tērēkh-a. Recall that in Imith^hupi SF converts a doubled high to fall when the doubled high is located on a tone-bearing unit that is followed by just one more tone-bearing unit in the phrase. Incidentally, notice that MT does not apply to the primary high tone on the first stem vowel since the preceding tone-bearing unit has a high tone; MT applies only to primary highs that are not preceded by a high. (MT does not apply to the primary high on the first mora of /noo/ either, since a primary high does not undergo MT when it is followed by a high on an immediately adjacent tone-bearing unit.)

Up until this point we have cited only verbal words in illustration of HTD, PFL, LF, SF, and MT. But nouns also exhibit the same phenomena. In Makua, every noun has (at the lexical level) at least one primary high tone. Some nouns have two or more primary high tones. Generally speaking, these primary high tones are never located on adjacent tone-bearing units (in other words, room is left for the primary high to double onto the following tone-bearing unit). While Ikorovere shows a considerable degree of predictability with respect to the location of the primary highs, there are still significant problems with claiming that these highs are assigned by rule; in any case, Imith^hupi exhibits many lexical tonal contrasts in nouns and there is no question but that the location of the primary highs in Imith^hupi nouns is part of their underlying structure.

Consider the following data (K=Ikorovere and M=Imith^hupi):

- | | | | | | |
|-----|--------------|-----|--------------|---|-------------|
| (5) | n-lūtō... | K | n-lūtō... | M | 'knot' |
| | n-lúto | | n-lúto | | |
| | ni-píípa... | K,M | oil drum | | |
| | ni-píipa | | | | |
| | ni-pārāri... | K | ni-pārāri... | M | 'rib, side' |
| | ni-pārāri | | ni-pārāri | | |

Each of these nouns has a primary high tone on the first vowel of the noun stem. (Makua nouns consist of a prefix, which in some instances may be Ø, and a stem. We have separated the prefix from the stem by means of a hyphen.)

This primary high tone is followed by a doubled high on the second vowel of the stem. However, the doubled high is absent if the second vowel is phrase-final (cf. n-lúto K,M versus n-lútó... K and n-lútó... M) or if it is the second of two successive tone-bearing units and is followed by just one more tone-bearing unit in the phrase (cf. ni-píípa K,M versus ni-píípa... K,M). Furthermore, in Imithupi the primary high is realized as mid in n-lutó... and ni-pārāri.../ni-pārāri since it is not preceded by a high and not followed either by a high on an immediately successive tone-bearing unit or a low. Notice that in n-lúto M, the primary high is not lowered to mid since it is followed by a low (that low being the consequence of PFL). The primary high in ni-píípa... M is not lowered to mid since it is followed by a high on an immediately adjacent tone-bearing unit, and the primary high in ni-píípa is not lowered to mid since it is followed by a low (that low being the consequence of LF).

In (6) we give some examples of nouns with two primary high tones.

- | | | | |
|-----|-------------------------------------|----------------------------------|--------------|
| (6) | <u>n-tóndóóśí...</u> K | <u>n-tóndóóśi</u> K | 'bird dung' |
| | <u>n-tháápíthá...</u> K | <u>n-tháápítha</u> K | 'mat' |
| | <u>n-lfólóló...</u> K | <u>n-lfólóló</u> K | 'gum' |
| | <u>nī-húrúúsi...</u> M | <u>nī-húrúusi</u> M | 'bundle' |
| | <u>nī-kútukút^{hú}...</u> M | <u>nī-kútukút^{hu}</u> M | 'sp. lizard' |

In the three examples from Ikorovere, there is a primary high tone on the first vowel of the noun stem and on the third vowel. The primary high tones double onto the second and fourth stem vowels. The doubled high on the second stem vowel always surfaces since it is never in the environment to undergo PFL or LF. The doubled high on the fourth stem vowel is lowered in phrase-final position as a consequence of PFL. Notice, incidentally, that in n-tóndóóśí... K, the second primary high is on the second mora of the long vowel. The first mora of that long vowel gets a doubled high on it. Notice also that in n-tóndóóśi K, the primary high on the second mora of the long vowel does not undergo LF (cf. ni-píípa... K vs. ni-píípa K). LF must be restricted to a doubled high.

In the case of the Imithupi example nī-húrúúsi..., there is a primary high on the prefix and on the second stem vowel (which happens to be the first mora of a long vowel). The first primary high is subject to MT but the second primary high is immune from this rule on two grounds (it is preceded by a high and it also followed by a high on an immediately adjacent tone-bearing unit). The doubled high on the first stem vowel is immune from all the rules affecting doubled highs (PFL, LF, and SF), as is the doubled high on the third stem vowel. The example nī-húrúúsi differs only in that the doubled high on the third stem vowel is affected by LF. Turning to nī-kútukút^{hú}... we see that this example also has a primary high on the prefix, but the second primary high is on the third stem vowel. Both of the primary high tones are in the environment for MT to apply. The doubled highs on the first stem vowel and on the fourth stem vowel are immune from the rules affecting doubled highs. nī-kútukút^{hu} differs in that (a) the doubled high on the fourth stem vowel is lowered as a consequence of PFL and (b) the primary high on the third stem vowel escapes MT (since it stands before a low as a result of the application of PFL).

We have illustrated several principles of Makua tonology, and we have seen that on the basis of these principles and their applicability to the examples discussed so far, it makes sense to claim that vowels are tone-bearing units in Makua. We now turn our attention to nasal consonants. First of all, it should be noted that there is no evidence that pre-vocalic nasals are tone-bearing units. For instance, examine the data in (7).

- | | | | |
|-----|---------------------------|---------------------------|------------|
| (7) | i-p ^h ōmé... K | i-p ^h ōmé... M | 'blood' |
| | i-phōme | i-phōme | |
| | i-k ^h ūnf... K | i-k ^h ūnf... M | 'firewood' |
| | i-k ^h ūni | i-k ^h ūni | |

These nouns have a primary high tone on the first vowel of the stem. The first vowel of the stem is followed by a pre-vocalic nasal. Notice that the doubled high appears not on the pre-vocalic nasal but on the vowel that follows it. Evidence that the doubled high is associated with the vowel rather than the nasal comes from the fact that the doubled high is subject to PFL (which applies only to tone-bearing units at the end of the phrase). If the doubled high were associated with the nasal, it would not be in the environment for PFL. Another piece of evidence that the doubled high is associated with the final vowel rather than the nasal comes from the fact that in Imithupi MT does apply to the primary high in i-phōmé... and i-k^hūnf.... Remember that MT does not ordinarily affect a primary high if that high is followed by an immediately adjacent tone-bearing unit containing a high. If the nasal in i-phōmé... and i-k^hūnf... were indeed a tone-bearing unit, we would expect MT to be inapplicable since the primary high would be followed by an adjacent high.

The case of pre-consonantal nasals is not, however, so straightforward. First, it can easily be demonstrated that some pre-consonantal nasals are not tone-bearing. (8) offers some relevant examples.

- | | | |
|-----|--|-----------------------------|
| (8) | ni-kwīnjīri.../ni-kwīnjīri K | 'brass or iron bracelet' |
| | ni-kwīnjīri.../ni-kwīnjīri M | |
| | ni-p ^h ūmbūlu.../ni-p ^h ūmbūlu K | 'sucker (of a plant, tree)' |
| | ni-phūmbūlu.../ni-phūmbūlu M | |
| | n-tāmbwāārf.../n-tāmbwāārf K | 'cassava flour' |
| | n-tāmbwāārf.../n-tāmbwāārf M | |

Each of the nouns in (8) has a primary high tone on the first stem vowel. This vowel is followed by a pre-consonantal nasal. But in each case the evidence is clear that it is the following vowel, rather than the pre-consonantal nasal, that receives the doubled high tone as a result of HTD. For instance, consider ni-kwīnjīri... K and ni-phūmbūlu... K. There is a high tone on the second stem vowel. This high tone cannot be a primary high--since if it were a primary high, it would have to double onto the next tone-bearing unit. But it does not. Thus if the second stem vowel has a doubled high, the pre-consonantal nasal cannot be tone-bearing. If this nasal were tone-bearing, it would receive the doubled high and not the second stem vowel.

The Imit^hupi forms ni-kwĩnjĩrĩ and ni-p^hũmbũlu provide confirmation that the high tone on the second stem vowel is a doubled high since both of these examples reveal that this high tone is subject to SF (a rule which applies only to doubled highs, not primary highs). The noun n-tāmbwāārĩ... K differs from the first two examples by virtue of the fact that in addition to a primary high on the first stem vowel there is also a primary high on the third stem vowel. The high tone on the second stem vowel must be interpreted as a doubled high, which means that the pre-consonantal nasal between the first and second stem vowels must not be tone-bearing.

It is important at this juncture in the exposition to make one point. When we say that the pre-consonantal nasals in (8) are not tone-bearing we do not mean that in phonetic representation they are not pronounced on any tone. Being a sonorant element, these nasals must be pronounced on some pitch level. However, the pitch of these nasals is entirely predictable: they are pronounced on the same pitch as the preceding vowel. Thus if the preceding vowel is low, such a nasal will be low; if the preceding vowel is high, such a nasal will be high; if the preceding vowel is mid, such a nasal will be mid. By "tone-bearing" we do not refer to phonetic pitch. Rather we refer to whether or not the unit is capable of being associated with a tone at the phonological level.

We have given examples of pre-consonantal nasals that are not tone-bearing. There are, in addition, such nasals that are tone-bearing. In particular, in both Ikorovere and Imit^hupi, nasals which can plausibly be argued to derive (synchronically) from a sequence consisting of a nasal plus a vowel are regularly tone-bearing. Due to space considerations, we cannot give an exhaustive survey of pre-consonantal nasals which derive from NV sequences, but we will give sufficient data to establish clearly that such nasals are indeed tone-bearing.

Nominal morphology provides two relevant cases. Makua nouns consist of a prefix plus a stem. Nouns can be sorted into different "noun classes" (in part) on the basis of the phonological shape of their prefixes. Typically the noun classes are paired such that when a given stem is used with the characteristic prefix of one of these paired noun classes, the noun will have a singular meaning, whereas when the stem is used with the characteristic prefix of the other member of the pair, the noun will have a plural meaning. These observations can be illustrated by the following examples.

- | | | | | |
|-----|-------------------------|------------|-------------------------|-------------|
| (9) | ni-hũte K,M | 'cloud' | ma-hũte K,M | 'clouds' |
| | ni-k ^h ũva K | 'bone' | ma-k ^h ũva K | 'bones' |
| | nĩ-k ^h ũva M | | mā-k ^h ũva M | |
| | ni-kōš ^v a K | 'bracelet' | ma-kōš ^v a K | 'bracelets' |
| | ni-kōša M | | ma-kōša M | |
| | ni-vāla K | 'sp. rat' | ma-vāla K | 'rats' |
| | nĩ-vāla M | | mā-vāla M | |
| | ni-pĩpa K,M | 'oil drum' | ma-pĩpa K,M | 'oil drums' |

From these data we can see that there is a noun class characterized by the prefix /ni/ used to form singular nouns which is paired with another noun class characterized by the prefix /ma/ used to form plural nouns. However, this picture is slightly complicated by examples such as the following from Ikorovere:

- | | | | | |
|------|----------|------------|-----------|-------------|
| (10) | n-cína | 'name' | ma-cína | 'names' |
| | n-lúto | 'knot' | ma-lúto | 'knots' |
| | n-ráma | 'cheek' | ma-ráma | 'cheeks' |
| | n-ŷóka | 'ancestor' | ma-ŷóka | 'ancestors' |
| | n-túto | 'ridge' | ma-túto | 'ridges' |
| | n-thátha | 'palm' | ma-thátha | 'palms' |

In these examples, we find the prefix /n/ used in the singular and the prefix /ma/ in the plural. There is, however, an obvious connection between the /ni/ prefix of (9) and the /n/ prefix of (10): they differ only in that the former contains a vowel that is missing in the latter. Thus the possibility exists that the /n/ is simply a phonological variant of the /ni/. This possibility is supported by the observation that the /ni/ and /n/ shapes are in complementary distribution. The /ni/ occurs before consonants other than coronals whereas the /n/ occurs before coronals. Thus a rule can be posited that deletes the vowel of /ni/ when that prefix stands before a coronal. (There is additional evidence that /ni/ and /n/ are in fact instances of the same noun class prefix; this evidence derives from the fact that each noun class governs a particular pattern of grammatical agreement, and the singular nouns in (9) and (10) govern precisely the same pattern of agreement. We will not, however, provide the pertinent data illustrating this point here.)

The /n/ alternant of /ni/ is a tone-bearing unit. This is immediately evident from a consideration of Imit^hupi. In Imit^hupi (unlike Ikorovere), the noun class prefixes /ni/ and /ma/ may be either low-toned or high-toned. Compare the examples in (11) with those in (12).

- | | | | | |
|------|------------------------|--------------------------|-----------------|------------------------------|
| (11) | ni-vási | (ma-vási) | 'scar' | cf. ni-vási... |
| | ni-ménjo | (ma-ménjo) | 'fish-hook' | ni-ménjō... |
| | ni-phávêla | (ma-phávêla) | 'lung' | ni-phávêla... |
| | ni-pípa | (ma-pípa) | 'oil drum' | ni-pípa... |
| (12) | nī-k ^h ōci | (mā-k ^h ōci) | 'snail shell' | cf. nī-k ^h ōci... |
| | nī-vāli | (mā-vāli) | 'potshard' | nī-vāli... |
| | ni-p ^h ōōru | (mā-p ^h ōōru) | 'foam, scum' | nī-phōōrū... |
| | nī-pōt ^h he | (mā-pōt ^h he) | 'boil, abscess' | nī-pōt ^h he... |

In (11) there is a primary high tone on the first vowel of the stem. This primary high is realized as a mid tone when it is in the environment to undergo MT. A doubled high appears on the second stem vowel. This doubled high undergoes PFL in ni-vási and ni-ménjo; it undergoes SF in ni-phávêla; and it undergoes LF in ni-pípa. In (12), the primary high is located on the prefix and is subject to MT. A doubled high appears on the first vowel of the stem. This doubled high undergoes SF in the examples nī-k^hōci, nī-vāli, and nī-pōt^hhe.

In (13) and (14) we see that the /n/ alternant likewise can be either low-toned or high-toned.

- (13) n-l̄f̄li (ma-l̄f̄li) 'sleeping mat' cf. n-l̄l̄f̄...
 n-s̄f̄lo (ma-s̄f̄lo) 'lower grinding stone' cf. n-s̄l̄l̄o...
 n-t̄^hūli (ma-t̄^hūli) 'piece of meat' cf. n-t̄^hūl̄f̄...
 n-t̄ēnd̄ēhu (ma-t̄ēnd̄ēhu) 'hornet' cf. n-t̄ēnd̄ēhu...
- (14) n̄-sēpa (ma-sēpa) 'valley' cf. n̄-sēpa...
 n̄-t̄^hāvi (ma-t̄^hāvi) 'hunting net' n̄-t̄^hāvi...
 n̄-th̄^hūwa (ma-th̄^hūwa) 'cooking stone' n̄-th̄^hūwa...
 n-rāma (ma-rāma) 'cheek' n-rāma...

The data in (13) and (14) are obviously entirely parallel to those in (11) and (12), except that whereas in the former pair the prefix has a vowel in it, in the latter pair the prefixal vowel is missing. The nasal prefix in examples like n̄-sēpa must be associated with a primary high tone that can undergo MT and this primary high tone must be able to double onto the following tone-bearing unit.

There is another noun class prefix in Makua that also has an alternant that consists of just a nasal consonant. Note the data in (15) and (16) from Ikorovere.

- (15) mw-ēto (my-ēto) 'leg'
 mw-āla (my-āla) 'rock'
 mw-eēri (my-eēri) 'month, moon'
 mw-aālo (my-aālo) 'knife'
- (16) m-pūuno (mi-pūuno) 'bee sting'
 n-tfita (mi-tfita) 'bundle'
 n-lāko (mi-lāko) 'door'
 ŋ-kēeka (mi-kēeka) 'mat'

The examples in (15) apparently involve noun stems which are vowel-initial, while those in (16) involve consonant-initial stems. The noun class prefix in the plural examples is obviously /mi/; the vowel /i/ obviously glides before the /a/-initial and /e/-initial stems shown in (15). But what is the underlying shape of the singular prefix? The most likely candidate is /mu/. Such an underlying representation would quite plausibly produce the alternant /mw/ in pre-vocalic position by a gliding process. In pre-consonantal position, however, the vowel of /mu/ must undergo a process of vowel elision, with the nasal /m/ assimilating the point of articulation of the following consonant. The elision of the vowel of /mu/ creates, therefore, another case of a pre-consonantal nasal that originates from a NV sequence.

In Imit^hupi (unlike Ikorovere), the noun class prefix /mu/ may either be low-toned or high-toned. In (17) we give examples of the low-toned form of the prefix, while in (18) we give examples of the high-toned form. In all these examples the /mu/ prefix appears simply as a pre-consonantal nasal.

- | | | | | |
|------|----------------------|-------------------------|-----------------------------|----------------|
| (17) | η-hūkūlo | (mī-hūkūlo) | 'beer sifter' | |
| | n-sōmēro | (mī-sōmēro) | 'a kind of drinking vessel' | |
| | m-mūto | (mī-mūto) | 'floor' | |
| | m-phīta | (mī-phīta) | 'load' | |
| | n-thēko | (mī-thēko) | 'task, work' | |
| | | | | |
| (18) | n-lāpa | (mī-lāpa) | 'baobab tree' | |
| | m-mīni | (mī-mīni) | 'handle' | |
| | n-k ^h ōyi | (mī-k ^h ōyi) | 'rope' | |
| | n-cōōco | (mī-cōōco) | 'sp. black ant' | cf. n-cōōcō... |

In an example such as n-sōmēro it is clear that the primary high is on the first stem vowel and that a doubled high appears on the second stem vowel (for in Imit^hupi the mid tone results only from a primary high and the falling tone on a short vowel results only from a doubled high). On the other hand, in an example such as n-lāpa it is equally clear that the primary high must be on the prefix /n/ and the doubled high on the first stem vowel (for as we just pointed out, mid tones come uniquely from primary highs and short falling tones come uniquely from doubled highs).

In Ikorovere, the nasal consonant derived from /ni/ and /mu/ is low-toned since in this dialect these prefixes are regularly low-toned (i.e. contrasts such as those shown above for Imit^hupi do not exist in this dialect). Nevertheless, the nasal consonant in question must be regarded as tone-bearing, even if it is regularly a low tone that it bears. This can be seen from the fact that when a noun such as n-lāko 'door' occurs after another word, the /n/ will be pronounced on a low tone even if the preceding word ends in a high tone. If the nasal were not tone-bearing, it would automatically be pronounced on the same pitch level as the preceding vowel. Thus the fact that the low-toned realization of the /n/ in n-lāko is independent of the nature of the preceding vowel demonstrates that this /n/ is tone-bearing.

We have cited two instances in Makua where a pre-consonantal nasal derives from a NV sequence and that nasal is tone-bearing. As mentioned earlier, in all parallel cases, the nasal is tone-bearing. Given such examples, one might be tempted to claim that these pre-consonantal nasals are not underlyingly tone-bearing. Underlyingly, it is the vowel of the prefixes /ni/ and /mu/ which is tone-bearing. The nasal becomes tone-bearing only in surface structure. Given this view, one could maintain that in underlying structure only vowels are tone-bearing and that one can predict which nasals will superficially appear to be tone-bearing.

There is, however, one case of a grammatical formative that consists just of a nasal which is tone-bearing but does not clearly derive from a NV sequence. In Ikorovere there is a suffixal element /a/ that follows a verb stem and precedes a final vowel /e/. Some examples of this formative:

- | | | |
|------|--|-------------------------|
| (19) | k ^h a-a-pah-āl-ē.../k ^h a-a-pah-āl-e | 'he hasn't burned s.t.' |
| | k ^h a-a-rap-āl-ē.../k ^h a-a-rap-āl-e | 'he hasn't bathed' |
| | k ^h a-a-tupúí-āl-e(...) | 'he hasn't cut it' |

In the construction illustrated, a primary high tone is assigned to the second vowel of the verb stem. This primary high tone will of course double onto the following vowel (and the doubled high will undergo lowering if it is phrase-final, etc.).

Items such as those in (19) regularly have an alternative form in Ikorovere where the /aI/ formative is absent and in its place a nasal consonant appears before the last consonant of the stem. Compare (20):

- (20) k^h_a -a-paŋh-é.../ k^h_a -a-paŋh-e 'he hasn't burned s.t.'
 k^h_a -a-rāmp-é.../ k^h_a -a-rāmp-e 'he hasn't bathed'
 k^h_a -a-tupūñl-e.../ k^h_a -a-tupūñl-e 'he hasn't cut it'

The nasal that occurs before the final stem consonant in these examples is homorganic with that consonant. It is also tone-bearing. When this nasal is preceded by just one vowel in the stem, the nasal receives the high tone that is assigned to the second tone-bearing unit in the stem. When the nasal is located after two stem vowels, the nasal receives a doubled high from the primary high that is located on the second stem vowel. Furthermore, the doubled high on the nasal is subject to the LF rule in an example such as k^h_a -a-tupūñl-e.

In Imit^hupi, the suffix /il/ is used rather than /aI/, and it is also the case that not all stems allow this /il/ to be replaced by a homorganic nasal located in front of the final consonant of the stem. Nevertheless, the facts presented above for Ikorovere have their counterparts in Imit^hupi as well.

We have shown that the pre-consonantal nasal in (20) is tone-bearing. We also know that in some sense this nasal is an alternative to the suffix -aI- (-il- in Imit^hupi). But what is not so clear is that this nasal should be phonologically derived from the sequence -aI- (-il-). If the nasal is not phonologically derived, then we would have a case where at least one pre-consonantal nasal must be underlyingly tone-bearing. If the nasal is phonologically derived from -aI- (-il-), then we could continue to claim that only vowels are underlyingly tone-bearing. This would then be a case where the sequence VC yields a tone-bearing nasal.

There are other problematic cases of pre-consonantal tone-bearing nasals. In both Ikorovere and Imit^hupi there is a large set of nouns which have no prefix in the singular and a high-toned /a/ prefix in the plural. Some examples:

- (21) $k^h_ā$ pa K,M 'tortoise' $ā$ - $k^h_ā$ pa K, $ā$ - $k^h_ā$ pa M 'tortoises'
 $rēt^h_e$ K,M 'sp. shrew' $ā$ - $rēt^h_e$ K, $ā$ - $rēt^h_e$ M 'shrews'
 $hukūla$ K, $hūkūla$ M 'hare' $ā$ - $hūkūla$ K, $ā$ - $hūkūla$ M 'hares'
 $k^h_ā$ rāka K,M 'potato' $ā$ - $k^h_ā$ rāka K, $ā$ - $k^h_ā$ rāka M 'potatoes'

Within this set of nouns, however, there is an unexpectedly large group whose stem begins with the syllable /na/, suggesting that perhaps this /na/ was at some point in time a grammatical element of some type. (22) provides a few examples.

- [illegible]

Within the group of /na/-initial nouns of this type, there is a substantial number where a pre-consonantal nasal follows and this nasal is tone-bearing. Examples:

- (23) naṃpémberē K 'giant' ā-naṃpémberē K 'giants'
naṃpya K,M 'sp. bird' ā-naṃpya K, ā-naṃpya M 'birds'
naṃpāāp^{hi} K 'leaves of sp. bean' ā-naṃpāāp^{hi} K 'pl. leaves'
nañcūwa K, nañcūwa M 'sp. snake' ā-nañcūwa K, ā-nañcūwa M 'snakes'
nañlūme K, nañlūme M 'male elephant' ā-nañlūme K, ā-nañlūme M
'female elephant'
nañhōko M 'sp. snake' ā-nañhōko 'snakes'

The nasal consonant following /na/ in these examples must be tone-bearing since it is pronounced with a high tone (or a mid tone, as a consequence of MT in Imithupi) regardless of whether the preceding vowel in /na/ is low-toned (as in the singular) or high-toned (as in the plural). Recall, pre-consonantal nasals that are not tone-bearing are pronounced on the same pitch level as the preceding vowel.

It is quite possible that at one stage in the history of Makua the formative /na/ was prefixed to a noun containing a prefix and that the pre-consonantal tone-bearing nasals in (23) were actually just reduced forms of /ni/ or /mu/. While such an historical possibility exists, the fact remains that synchronically the tone-bearing nasals in (23) cannot plausibly be derived from a NV sequence. However, it does appear to be true that pre-consonantal nasals following /na/ are regularly tone-bearing, so it could be claimed that these data do not lead to the conclusion that there is no way to predict whether a given pre-consonantal nasal is tone-bearing or not.

There is, however, evidence that the ability to bear tone is an unpredictable aspect of pre-consonantal nasals. Let us begin by considering verbal stems.

- (24) u-ménj-ā... / u-ménj-a K 'to catch fish with hook and line'
u-ménj-ā... / u-ménj-a M

u-pīnd-ā... / u-pīnd-a K 'to twist'
u-pīnd-ā... / u-pīnd-a M

u-pāngāc-a(...) K 'to fix, repair'
u-pāngāc-a... / u-pāngāc-a M

The infinitive form of the verb in Makua regularly has a primary high tone assigned to the first vowel of the verb stem. This high tone will naturally double onto the next tone-bearing unit. In (24) it is obvious that the pre-consonantal nasal following the first stem vowel is not tone-bearing since it is the following vowel that receives the doubled high.

Most of the verbs in Makua containing a stem-internal pre-consonantal nasal are like those in (24) in that the nasal is not tone-bearing. However, there are a few examples where such as nasal is tone-bearing.

- (25) u-púnth-a.../ u-púnth-a K,M 'to pick out, pry out, remove using a sharp instrument'
 u-hǎñkw-a.../ u-hǎñkw-a M 'to go into the bush to defecate'
 u-t^hínt-a.../ u-t^hínt-a M 'to play with water'

The fact that these pre-consonantal nasals (a) receive a doubled high tone in examples like u-púnth-a..., u-hǎñkw-a..., and u-t^hínt-a... and (b) undergo LF in examples such as u-púnth-a, u-hǎñkw-a, and u-t^hínt-a demonstrates unequivocally that they are tone-bearing. But there is no way to predict that the nasals in (25) are tone-bearing whereas those in (24) are not.

When one turns to nouns, the problem of unpredictability--especially in Imithupi--becomes even more striking. Consider the examples in (26) and (27).

(26) non-tone-bearing pre-consonantal nasals

u-réndo K,M	'trip' (cf. u-réndō... K, u-rēndō... M)
n-rénga K,M	'the long side of a loin cloth'
n-ṣóonga K	'a kind of arrow' (cf. n-ṣóōnga... K)
riimba K	'a kind of musical instrument' (cf. riimbā... K)
i-rínt ^h a K,M	'branch of a tree' (cf. i-rínth ^h ā...K, i-rínth ^h ā...)
ni-wámbwe M	'flood'
ni-wámba K,M	'leaf'
n-th ^h ũnkwa M	'stomach'
n-t ^h énga K,M	'message, messenger'
n-tũnda K,M	'hill'
n-tōondo K	'a kind of walking staff' (cf. n-tōōndo...K)
n-tfíndo K,M	'type, fashion'
n-tfínji K	'pocket of grass within a burnt area'
n-tímbe K,M	'area along river for cultivating rice'
n-téengu K	'bedpost'

n-rónth ^h o	K, M	'stick used for poking'
i-ténde	K, M	'reed mat'
n-témbo	K, M	'corpse'
n-táanda	K, M	'shallow lake formed after rains'
ny-kónk ^h a	M	'bunch of bananas'
q-kónda	K, M	'piece of cloth'
ma-ngúungu	K	'kind of boiled maize'
i-kúngwe	K, M	'circle'
ni-kúmp ^h a	M	'wall'
i-ngúumbi	K	'termite'
i-k ^h únda	K, M	'pigeon'
cuúncu	K	'a kind of drum'
n-cínga	K	'escarpment'

(27) tone-bearing pre-consonantal nasals

rímpa	M	'a kind of musical instrument'
ni-véñkwa	M	'a kind of horn'
n-túntu	M	'edge, shore'
n-tíñci	M	'pocket of grass within a burnt area'
i-kúmpí	M	'termite'
cuñcu	M	'a kind of drum'
n-téñku	M	'bedpost'
n-cíñka	M	'escarpment'
n-táñta	M	'shallow lake formed after rains'
ñ-tóñto	M	'a kind of walking staff' (cf. ñ-tóñtó...)
ñ-sóñka	M	'a kind of arrow' (cf. ñ-sóñká...)
ma-kúñku	M	'kind of boiled maize'
mañta	K, M	'dried saliva'
siñti	M	'a kind of squash'
u-rúñt ^h u	M	'green cashew nut'
n-fyáñfyo	K	'whip, small stick used to beat s.o.'

Comparison of the data in (26) and (27) provides some insight into the source of many of the tone-bearing pre-consonantal nasals in Imithupi. There are numerous examples where Ikorovere has a long vowel followed by a cluster of nasal plus voiced consonant where Imithupi has a short vowel followed by a nasal plus voiceless consonant. For example, we have rímmba K but rímpa M; cuúncu K but cuñcu M; n-táanda K but n-táñta M. What seems

to have happened is the following: these items originally contained a long vowel (=two tone-bearing units); when this long vowel shortened in Imithupi, the number of tone-bearing units was retained by converting the nasal into a tone-bearing element. Although this provides a plausible account of the origin of many of the stem-internal tone-bearing nasals in Imithupi, it does not alter the fact that from a synchronic point of view one cannot predict whether a pre-consonantal nasal will be tone-bearing or not. Thus in Imithupi we have sequences of vowel-nasal-voiceless consonant where the nasal is tone-bearing (as in n-tá̃nta) but also cases where it is not (as in i-rínt^ha, n-rónt^ho, and ni-kúmp^ha).

We have suggested earlier that some instances of tone-bearing stem-internal nasals may have originated from prefixes of the shape /ni/ or /mu/. Some evidence for this claim is provided by a comparison of forms in Ikorovere with those in Imithupi. For example, Ikorovere has the noun thóro 'field mouse' (ā-thóro 'field mice'); but in Imithupi we find ñthóro as the singular form and ā-ñthóro as the plural form. The stem-initial /n/ in the Imithupi form bears a low tone in the case of ñthóro since it is underlyingly low-toned, but receives a doubled high from the prefix /a/ in the case of ā-ñthóro. The Ikorovere item demonstrates that originally the stem was simply /thoro/ and that the nasal in Imithupi represents an element added to the stem. The only elements that are regularly added before the stem are noun class prefixes. Thus it seems most likely that the /n/ in ñthóro originated as a prefix. Synchronically, however, there is no evidence whatsoever for identifying this nasal as a prefix. From the point of view of the speaker of Imithupi, ñthóro is unanalyzable.

It should perhaps be noted (in connection with the discussion immediately above) that not all stem-initial pre-consonantal nasals are tone-bearing. Consider the example ndeembe K 'cockerel'. The plural form of this stem involves prefixing /a/, which bears a primary high tone: ā-ndéembe. Notice that the primary high of the prefix doubles onto the first vowel of the stem--in other words, the pre-consonantal nasal is skipped over, showing that it is not tone-bearing. A parallel example is provided by mbwaani K, M 'sp. cassava' which has the plural form ā-mbwaani K, ā-mbwaani M. Once again we see that the high tone of the prefix doubles onto the first vowel of the stem /mbwaani/, skipping over the pre-consonantal nasal. The data presently available to us suggest that a nasal in a stem-initial NC cluster is ordinarily not tone-bearing when the consonant after the nasal is voiced, while the nasal is ordinarily tone-bearing if the consonant is voiceless. Whether we are dealing here with a tendency or an absolute rule is not entirely clear at present.

Let us summarize what we have demonstrated about the status of pre-consonantal nasals in Makua. Nasals that are derived (synchronically) from NV sequences are always tone-bearing in Makua. It is not necessary to assume that such nasals are underlyingly tone-bearing, although they must be tone-bearing in surface structure. There are, however, many instances (particularly in Imithupi) of pre-consonantal nasals that are tone-bearing and cannot be claimed to derive (synchronically) from a NV (or VN) source. Such nasals must, apparently, be underlyingly tone-bearing. But not all pre-consonantal nasals in Makua are tone-bearing. Consequently, whether a pre-consonantal

nasal is tone-bearing or not does not follow from any segmental information about the nasal itself. In other words, the ability of a pre-consonantal nasal to bear tone is a fact that is independent of the segmental structure of the nasal. It is an abstract property that must be included in the underlying representation.

Notice that whether or not a pre-consonantal nasal is tone-bearing in Makua cannot be indicated simply by having a tone associated with that nasal in underlying structure. That is, one cannot represent the difference between tone-bearing and non-tone-bearing by whether or not the element in question has or does not have an underlying tone. The reason for this is extremely simple. In Makua, verbal stems do not have lexical tone. There are no lexical tone contrasts in Makua verbal stems. The tonal shape of a stem is entirely predictable in terms of the morphological construction in which the verb stem appears. Thus u-ménj-a 'to fish with a hook and line' (with a non-tone-bearing nasal) and u-púnth-a 'to pick out, pry out' (with a tone-bearing nasal) do not have any tones associated with their stems in underlying structure. But even though these stems have no tones associated with them, they must have a difference in their representation such that the nasal in /menj/ is not tone-bearing while that in /punth/ is tone-bearing. We conclude, therefore, that the difference between tone-bearing and not tone-bearing is an abstract property of underlying structure that is present independently of whether or not the unit in question has an underlying tonal specification or not.

In Makua, all vowels predictably have the abstract property of being tone-bearing. Non-nasal consonants predictably lack this property. Pre-vocalic nasals predictably lack this property. Pre-consonantal nasals predictably have the property of being tone-bearing when they derive from a NV sequence. Other (non-derived) pre-consonantal nasals may or may not be tone-bearing. They must be lexically marked as having the property or not.

NOTES

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¹ The data from Ikorovere were provided by S.A.C. Waane (of Tunduru district in Tanzania) while the data from Imithupi were provided by J.A.R. Wembah-Rashid (of Masasi district in Tanzania). We would like to thank both of our consultants for their tireless patience and enthusiasm. The dialects of Makua have been little explored and we cannot at present determine to what extent the Tanzanian dialects described here extend into Mozambique. Since the Makua apparently migrated into Tanzania from Mozambique, there is good reason to expect that forms of Ikorovere and Imithupi are to be found inside Mozambique as well.

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PROBLEMS IN A PROSODIC ANALYSIS OF HEBREW MORPHOLOGY

Shlomo Lederman

This paper applies McCarthy's (1979, 1981) autosegmental theory of Semitic morphology to modern Hebrew data, and points out some methodological and empirical weaknesses in it.

First a brief sketch of McCarthy's theory is given (§3), illustrated by McCarthy's analysis of Arabic (§4). The rest of the paper is devoted to its application to Hebrew (§5).

In §3 it is shown that the second universal convention of association is redundant and that the third convention must be able to re-apply, yet this re-application must be restricted in some way.

In §4 it is argued that an *i*-deletion analysis of mapping the vowel melodies onto Arabic prosodic templates is preferable to McCarthy's Vowel Association analysis.

When McCarthy's theory is applied to modern Hebrew data it is shown that modifications have to be introduced into the system because of the loss of medial gemination and the lack of phonological motivation for positing medial or final semivowels in some verbal roots.

Although the principles and devices proposed in McCarthy's analysis of Arabic also handle large parts of Hebrew verbal morphology, it is argued that his treatment of medial gemination and reduplication - both prevalent in Semitic languages - is no more restrictive and less powerful than a transformational treatment of these phenomena.*

1. PREFACE

McCarthy (1979, 1981) adopts an independently developed and motivated theory of autosegmental phonology, and in terms of this theory, together with what he claims to be slight modifications and natural extensions of the theory, he analyzes Standard Arabic morphology and some aspects of Biblical Hebrew.

A major motivation for McCarthy's analysis is his desire to do away with transformational morphological processes that are called for in segmental analyses of such processes as reduplication. Allowing for transformational morphological rules, argues McCarthy, is too unrestrictive and powerful in that it makes possible the formulation of rules not attested in any natural language. McCarthy shows that employing a prosodic analysis eliminates the need for transformational notation in morphological rules. He also shows that such an analysis explains hitherto unexplained and inexpressible facts about Arabic and Semitic morphology, such as the impossibility of identical consonants occupying first and second root consonant slots in a triradical root versus the possibility of identical consonants in second and third positions, first noted in Greenberg (1950).

Moreover, the autosegmental theory is so constrained as to enable only the generation of occurring words while making impossible the derivation of non-occurring ones. This is to be contrasted with a theory allowing transformational notation, a device that makes non-occurring derivations theoretically possible. Thus, the choice of the formal apparatus of a theory has substantive empirical consequences, as pointed out in Kiparsky (1968).

2. AIM

The aim of the present paper is to show some methodological and empirical weaknesses in McCarthy's analysis. It will be argued that some of the modifications of autosegmental theory, dictated by the facts of Semitic morphology, do not follow from the theory, and that the autosegmental theory, so modified, becomes so unconstrained and permissive so as to allow the formulation of processes that would generate non-occurring derivations, diminishing thus the empirical content of the theory. The constraints built into the initial autosegmental theory have to be relaxed whenever the facts so dictate, considerably weakening the constraints.

After a succinct outline of the autosegmental theory adopted by McCarthy I will critically discuss the modifications dictated by the facts of Arabic morphology and then evaluate this theory in light of Hebrew morphology. I will restrict myself mostly to verbal morphology.

3. THEORETICAL APPARATUS

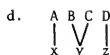
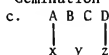
McCarthy assumes the theory of autosegmental phonology of Clements and Ford (1979), a refinement of Goldsmith (1976).

The universal conventions of association are formulated in terms of mapping of melodic elements (units on an autosegmental tier) onto melody-bearing elements (units on the segmental tier). There are three such conventions, illustrated in (1) by the association of lower case melodic elements with upper case melody-bearing elements:

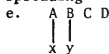
- i. If there are several unassociated melodic elements and several unassociated melody-bearing elements, the former are associated one-to-one from left to right with the latter. This transforms (1a) to (1b).
- ii. If, after application of the first convention, there remain one unassociated melodic element and one or more unassociated melody-bearing elements, the former is associated with all the latter. This transforms (1c) to (1d).
- iii. If all melodic elements are associated and if there are one or more unassociated melody-bearing elements, all of the latter are assigned the melody associated with the melody-bearing element on their immediate left if possible. This principle, which has the effect of automatic spreading, will alter (1e) to (1f).

- (1) One-to-one from left to right
- | | |
|-----------------|---|
| a. A B C | b. A B C |
| | $\begin{array}{ccc} & & \\ x & y & z \end{array}$ |
| x y z | |

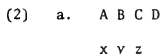
"Gemination"



Spreading

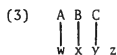


It is very important to note that (1c) can never be the immediate output of convention (i), although convention (ii) is so formulated as to be fed by (i). The immediate output of the first convention on an input like (2a) would be (2b), to which the third convention would apply to yield (2c):



To get the configuration (1c) we must assume that it is derived from (2c) by the erasure of the associations of z to C and y to B, since only then can the second convention apply. Given, however, the necessary application of conventions (i) and (iii) before convention (ii), there is no need for convention (ii) - it is a special case of convention (iii) (in conjunction with the erasure of the association of z to C, which is needed anyway).

McCarthy modifies earlier versions in that no provision is made for the automatic association of an unassociated melodic element with a melody-bearing element that already has an association. The representation in (3) is therefore well-formed:



If z remains unassociated throughout the derivation, it receives no phonetic realization. Floating melodic elements are not anchored. McCarthy calls this the "prohibition against many-to-one associations".

The notion of autosegmental tier is enriched to allow for consonantal roots and vocalic melodies in Arabic to be represented on separate autosegmental tiers. This will require an additional convention that associates vowel melodies with V-slots on the segmental template and root melodies with C-slots.

McCarthy also adopts a revised version of Leben's Obligatory Contour Principle. Leben's (1973) principle says that no autosegmental tier can contain adjacent identical elements. McCarthy revises this principle so that a grammar having adjacent identical elements is less highly valued than a grammar not having adjacent identical elements on an autosegmental tier.

this theory we cannot posit a root ssm, which is ruled out by the Obligatory Contour Principle, ruling out *sasam being derived from it by the first convention, or under the revised Obligatory Contour Principle a grammar containing the root ssm is less highly valued than a grammar which has no such roots.

However, in the Second and Fifth Binyanim we find medial gemination (II kattab, V takattab), for which the theory is inadequate. Without any modification in our analysis medial gemination is ruled out and we would instead expect to find *katbab and *takatbab, respectively, as illustrated in (7), after application of the first and third conventions:

- (7) a. $\begin{array}{c} \text{CVCCVC} \\ \diagdown \quad \diagup \quad \diagup \\ \text{ktb} \end{array}$ -second binyan template (katbab) b. $\begin{array}{c} \text{t} \\ | \\ \text{CVCVCCVC} \\ \diagdown \quad \diagup \quad \diagup \\ \text{ktb} \end{array}$ -fifth binyan (takatbab)

To account for the gemination in the Second and Fifth Binyanim McCarthy must formulate a rule erasing the first association of the last root consonant. This rule, restricted to Second and Fifth Binyanim, will convert (7) into (8):

- (8) Erasure
- a. $\begin{array}{c} \text{CVCCVC} \\ \diagdown \quad \diagup \quad \diagup \\ \text{ktb} \end{array}$ b. $\begin{array}{c} \text{t} \\ | \\ \text{CVCVCCVC} \\ \diagdown \quad \diagup \quad \diagup \\ \text{ktb} \end{array}$

The third convention will now re-apply and associate the unassociated melody-bearing element with the melody associated with the melody-bearing element to its immediate left, i.e., t, and will yield the correct forms, as in (9):

- (9) Reassociation
- a. $\begin{array}{c} \text{CVCCVC} \\ \diagdown \quad \diagup \quad \diagup \\ \text{ktb} \end{array}$ (kattab) b. $\begin{array}{c} \text{t} \\ | \\ \text{CVCVCCVC} \\ \diagdown \quad \diagup \quad \diagup \\ \text{ktb} \end{array}$ (takattab)

The autosegmental theory loses much of the predictive and restrictive power it has if it allows the formulation of the Erasure rule. The theory, without the Erasure rule, predicts the impossibility of medial gemination. This is a very strong, falsifiable empirical claim, and indeed it is falsified in the Second and Fifth Binyanim in Arabic. Notice that McCarthy offers no motivation for the Erasure rule, except for the motivation

of making the theory agree with the facts. Notice that once the theory allows language-specific rules such as the Erasure rule (at some cost to the grammar, of course), then the theory offers no principled way of disallowing rules of erasure that would, e.g., erase the second rather than the penultimate root consonant, yielding such non-occurring strings as *sasam from sm, *kaktab from ktb, thereby losing whatever predictive and restrictive power it had.

Therefore, the introduction of the rule of Second and Fifth Binyanim Erasure is not a slight modification in the theory, and it can be incorporated into it only with tremendous cost, unless the theory can specify, from independently motivated general principles, what language-specific rules are allowed and which are not, allowing the Erasure rule formulated by McCarthy and rejecting the erasure rule that gives rise to initial gemination.

Notice also that, given the Second Universal Association Convention, we can derive gemination by a rule erasing in (7) the second and third associations. Such a rule would do away with the need for the third convention to re-apply to (8). A theory in which more than one equally plausible analyses are possible is not constrained enough, and the theory in question has no evaluation measure to tell us which analysis is to be preferred.

It should be pointed out that in order for McCarthy's analysis to work the third convention must be able to re-apply. Obviously, the automatic application of this convention must be restricted in some way, otherwise it would wrongly re-fill slots emptied by morphological rules. Thus, in Tigre, verbs with a medial semivowel lose the semivowel in the perfect and jussive (imperative) of type A verbs and the derivative verb type 'a-A' - a morphological rule, as the semivowel is not elided in the imperfect and in the other verb types, although the semivowel appears in exactly the same phonological environment. Thus we find geda 'he hurried' versus legayed 'he hurries' (root gyd). After semivowel drop the derivation of 'he hurried' should look like (10):

(10) CVCVCV
 ↓
 gyd

The third convention should automatically re-apply to (10) to yield *gagda 'he hurried'. (For the vowel alternations see Kisseberth, 1978, and Raz, 1980a,b). But instead we have geda, with the second C of the template unassociated. Therefore, the third convention cannot apply after semivowel deletion - a morphological, not phonological, rule (assuming that any morphologically restricted rule is morphological). Hence, the third convention cannot automatically re-apply as suggested by McCarthy.

Recall McCarthy's rejection of transformational morphological rules as too powerful and unrestrictive. It is not clear at all how to compare the relative power of such disparate theories as McCarthy's and a segmental theory allowing transformational power. Given this and the need to enrich McCarthy's theory, it is not at all clear that it is the more restrictive and less powerful in accounting for such morphological processes as reduplication.

Up to now we discussed the mapping of the root melody onto the binyan template. The same conventions map the vowel melodies, yet also here a crucial language-specific rule is formulated to ensure the correct output.

McCarthy isolates the vowel melodies for all binyanim except I, as follows: a active perfective, ui passive perfective, ua passive participle, and uai active participle.

The universal conventions of association alone are not sufficient to ensure the correct mapping of these melodies with the V-slots of the prosodic template. If we take the root ktb, mapping the active participle melody uai in the sixth binyan, after application of the first and third conventions we would get (11):

$$(11) \quad \begin{array}{c} \text{CVCVCVVCVC} \\ \swarrow \quad \downarrow \quad \searrow \\ \text{uai} \end{array} \quad * \underline{\text{mutakiitib}}$$

However, the correct form is mutakaatib. To accommodate facts such as this McCarthy formulates a rule of Vowel Association taking precedence over all the universal conventions and associating the melodic element i in the final V-slot of the melodic template. Then the universal conventions of association apply to give the correct results such as mutakaatib.⁴

Notice however that given this theory we can account for the data another way. We can let the universal conventions apply first, yielding mutakiitib, as shown in (11). Then we apply a rule of i-deletion, deleting all but the last association lines of i, as formulated in (12) (the rule applies iteratively):

$$(12) \quad \begin{array}{c} \text{V} \\ | \\ \underline{i} \end{array} + \begin{array}{c} \text{V} \\ | \\ \underline{i} \end{array} / \text{_____} (C)V$$

Spreading would then automatically re-apply, yielding the correct mutakaatib. It might be argued that because of simplicity the Vowel Association analysis is to be preferred to the i-deletion analysis. However, in the Vowel Association analysis we must stipulate that the Vowel Association rule applies before all universal association conventions. To the extent that McCarthy's theory does not constrain language-specific rules to apply either only before or only after the universal conventions, his theory is too powerful and not easily falsifiable - considerably weakening his claim to the superiority of his analysis over a transformational one. Notice also that the i-deletion analysis exactly parallels the Erasure rule of the second and fifth binyanim, making this analysis quite feasible within McCarthy's system.

There is another advantage of the i-deletion analysis over the Vowel Association one proposed by McCarthy. Thus, in the perfective passive (ui) of the eighth binyan we have the form ktutib. To derive such forms only the universal conventions need apply, whereas in the Vowel Association

analysis the claim is made that even in such forms as ktutib the i is first associated by the language-particular rule, and only then do the universal conventions apply. If universal conventions can do exactly the work that a language-particular rule does, then there seems to be no reason for that language-particular rule to exist. On the other hand, the i-deletion rule treats all binyanim uniformly, applying only when its structural description is met, i.e., when there is more than one i.

As to the vowel melody of the active imperfective (again, except for the first binyan) it is uai in II, III, IV, QI, ai in the seventh through fifteenth binyanim and in QIII, QIV, and a in V, VI and QII. One may assume, as McCarthy does, that the active imperfective melody is uai and then formulate partly morphologically conditioned rules deleting the u and i melodic elements. Note that the u deletion rule in such a case will introduce a new type of rule into the theory. To prevent, for example, aktabib from being realized as *uktabib it would not be enough for the u deletion rule simply to delete the association of the u to the first V-slot, because if we formulate the rule thus, the first convention would automatically re-apply to give *uktabib once more (remember that there is nothing against the conventions re-applying, and in fact at least the third convention must automatically re-apply in McCarthy's analysis). Therefore, the rule of u deletion must delete the u melody from the vowel melody tier, not just erasing an association line - a rule unlike all other rules in McCarthy's analysis. Likewise, the i deletion rule in such active imperfective forms as atakattab - the erasure of only the association line would ensure the reassociation of the i by the reapplication of the first convention.

5. HEBREW

Although many generalizations about Hebrew morphology can be captured in McCarthy's theory the same way it was done for Arabic, there are some divergences that pose grave problems for the theory. I will discuss these problematic areas, some of which are discussed in McCarthy (1981).⁵

5.1. ADJACENT IDENTICAL ROOT CONSONANTS

McCarthy claims that his autosegmental analysis solves the otherwise unexplainable asymmetry in the distribution of the root consonants in Semitic described in Greenberg (1950) and explained on page 144 of this paper. Yet Schwarzwald (1974) provides a convincing phonological explanation of these facts.

Greenberg (1950) came up with the following three results in his survey of the Semitic verbal root: a) in the first and second root consonants there are no identical or homorganic consonants; b) in the second and third place there are no homorganic consonants (with many exceptions), but there are identical consonants; c) in first and third place the constraint against identical or homorganic consonants still holds, but not absolutely.

Schwarzwald points out that the many exceptions to constraints (b) and (c) are not surprising, when we bear in mind that between the second and third consonant in the verb there intervenes a vowel (where there is no

phonetic vowel, there is an intervening vowel underlyingly), and a vowel also separates the first and third consonants. Therefore, these are only apparent exceptions to (b) and (c). The generalization here is that identical or homorganic consonants can occur when there is a vowel between them.

On the other hand, the first and second root consonants occur many times in Hebrew as a consonant cluster in the verbal conjugation: in the future (imperfective) and the imperative of Pa'al Binyan (e.g., ešmor 'I'll guard'; šmor 'guard, imp.', from šmr), in the past (perfective) and present (participle) of Nif'al Binyan (e.g., nišbar 'was, is broken', from šbr), in Hif'il Binyan (e.g., hilbiš 'cause to dress', from lbš), and in Huf'al Binyan (e.g., hulbaš 'was made to dress', from lbš).

Schwarzwald therefore reformulates Greenberg's constraints as one: "Identical and homorganic consonants cannot occur in a consonant cluster" (p. 132).

There are some verbs in Hebrew with identical first and second root consonants. This contradicts the absolute version of the Obligatory Contour Principle. Under the revision of this principle suggested by McCarthy, such adjacent identical elements in the autosegmental tier are allowed only at great cost to the grammar. However, under Schwarzwald's analysis these occurrences are quite natural and pose no problem, as they appear only in the Pi'el, Pu'al and Hitpa'el Binyanim where there is always an intervening vowel between the first and second root consonants. Thus we have in Hebrew verbs like: mimeš 'realize, execute' (root mmš), mimen 'finance' (root mmn), dida 'toddler' (root ddy), kixev⁶ 'star' (root kxb), lilyen 'do acrobatics' (root llyn), mimzer 'bastardize' (root mmzr), šiša 'divide into six' (root šš), šišben 'be a sponsor, best man' (root ššbn), sisgen 'variegate' (root ssgn).

It should be emphasized that the surface adjacency of the identical consonants is not a result of the deletion of an underlyingly intervening consonant by a morphological or phonological rule, as sometimes happens with the deletion of semivowels. There is no reason to assign the above verbs roots with an intervening consonant. Such an analysis could perhaps work for Biblical Hebrew in such examples as the denominative kikkev 'star' where we might posit the root kwkb. However, in modern Hebrew there is no evidence for such abstract representation, the semivowel never showing up on the surface. And anyway, kikkev is not attested in Biblical Hebrew, it is a recent neologism.

Recall also that while McCarthy claims to explain only the distribution of identical adjacent consonants, Schwarzwald's analysis covers both homorganic and identical consonants with one and the same principle (identical consonants being a special case of homorganic consonants).

Schwarzwald shows that the constraint against consonant clusters applies also at the level of the phonetic word, and that therefore the constraint should be formulated as a constraint on phonetic output and not as a constraint on the root. Thus there are many nouns and inflected verbs where a vowel intervenes between homorganic or identical consonants - nouns like buba 'doll', bimuy 'stage-directing', dad 'udder', diduy 'toddling',

lulyan 'acrobat', tatran 'one lacking olfactory sense', sason 'celebration', and inflected verbs like lamadeti 'I studied' (/lamad+ti/), yaladet 'you (f.sg.) gave birth' (/yalad+t/). In the last two forms note the epenthetic schwa, introduced to break the homorganic consonant cluster. Compare this with šamart (/šamar+t/) 'you (f.sg.) guarded', which is the regular case without epenthesis. It is also important to note that in the last two examples the constraint holds across morpheme boundaries, and is thus not restricted to the root only.

5.2. BIRADICAL PA'AL VERBS

In his analysis of the Arabic verbal system McCarthy shows that each binyan has a unique prosodic template, convincingly showing that traditionally separate binyanim having identical prosodic templates actually belong to one and the same binyan. Thus, dahraj (root dhrij), traditionally assigned to binyan QI, is simply a quadriradical root mapped onto binyan II (cf. kattab, with the triradical root ktb in binyan II). Likewise, binyan QII (e.g., tadahraj) is nothing but a quadriradical of binyan V (e.g., takattab), QIII (e.g., dhanraj) belongs to XIX (e.g., ktanbab), and QIV (e.g., dharjaj) belongs to XI (e.g., ктааб).⁷

On the other hand, when McCarthy's analysis is applied to Hebrew Pa'al Binyan, we are forced to posit three distinct prosodic templates for Pa'al Binyan (CVCVC for regular Pa'al verbs, e.g., lamad 'study'; CVC for monosyllabic biradical Pa'al verbs, e.g., kam 'get up'; and CVCV for final semivowel Pa'al verbs, e.g., kana 'buy') unless we want to posit very abstract roots for the last two verb groups, i.e., derive kam from the root kwm and kana from the root kny, mapped onto the regular CVCVC Pa'al prosodic template, with later loss of the semivowel and certain vowel adjustments. We will discuss these verb groups in this and the next sections.

Within McCarthy's analysis Hebrew Pa'al Binyan (First Binyan) has the prosodic template CVCVC, e.g., lamad 'study', axal 'eat', safar 'count'. This template, together with automatic spreading, also accounts for the reduplication of the final consonant of biradical roots in Pa'al, such as madad 'measure' (root md), galal 'roll' (root gl), tasas⁸ 'effervesce' (root ts), gavav 'pile up' (root gb), gazaz 'shear' (root gz), balal 'mix' (root bl), afaf 'surround' (root p), bazaz 'loot' (root bz), zalat 'devour' (root zl), xafaf 'shampoo' (root xp) and many more. Given the biradical root, the universal conventions of association will automatically yield the occurring forms, so that there is nothing special or unnatural about these *verba mediae geminatae*, and the lexicon (or the root list) need not stipulate that the second consonant is reduplicated.

However, there is a small number of about fifteen monosyllabic biradical verbs, mostly intransitive, that do not undergo this reduplication, e.g., we have šat 'sail' (root št) and not *šatat. These verbs are: gar 'reside', ba 'come', sam 'put', rac 'run', kam 'get up', cac 'emerge', šav 'return', šar 'sing', zaz 'move', šat 'sail', met 'die', boš 'be ashamed', sav 'turn', xas 'feel', nax 'rest'.⁹

Corresponding to gar 'reside' we find garar 'drag', and corresponding to rac 'run' we find racac 'crush'. The semantic difference between the two

forms derived presumably from the biradical roots gr and rc, respectively, indicate that this is a case of root homonymy and we really have two roots gr - gr₁ and gr₂ and likewise for rc.

Traditionally these monosyllabic verbs are analyzed as Pa'al verbs. This classification arises in part, but not exclusively, from diachronic and comparative Semitic studies. Historically some of these verbs had had a medial semivowel, and the synchronic conjugation seems to indicate that some verbs may have had different underlying semivowels, e.g., 'ašir 'I'll sing' (from *šyr) but 'akum 'I'll get up' (from *qwm).¹⁰ But apart from these vowel alternations there is nothing in the phonology or morphology of these forms in modern Hebrew to suggest that they have a synchronic triradical root (in sharp contrast to corresponding medial semivowel roots in Arabic and Ethiopic).

For the sake of the uniformity of the Pa'al prosodic template one might suggest to analyze these monosyllabic verbs as having a triradical root with medial semivowel, mapping these roots into the familiar CVCVC Pa'al template. Later rules will delete the semivowel and adjust the adjacent vowels. However, this analysis should be rejected in that it posits a rule of absolute neutralization, without any compelling motivation, as the purported semivowel doesn't show up in any of the conjugations or in any other derivationally related words. The only motivation for semivowel drop is paradigm regularity and the alternations in the adjacent vowels.¹¹

An alternative would be to posit a different prosodic template for the monosyllabic verbs, namely, CVC. The question then arises whether this template belongs to Pa'al Binyan (as an alternate to the regular CVCVC Pa'al template) or constitutes a separate binyan. If we include this template in Pa'al Binyan, for there are many morphological characteristics these verbs share with regular Pa'al verbs, we will have to distinguish in our root list those biradical roots that are mapped onto a CVCVC template (e.g., garar 'drag', from the root gr) and those mapped onto a CVC one (e.g., gar 'reside', from the root gr).

5.3. ROOT-FINAL SEMIVOWEL

Apart from the regular triradical Pa'al (e.g., šavar 'break') and the monosyllabic biradical Pa'al (e.g., kam 'get up') there is a third group of Pa'al verbs showing on the surface two root consonants, for which we will have to posit a third Pa'al template, namely CVCV. These verbs are such as: raca 'want', kana 'buy', šata 'drink', asa 'do', maxa 'protest', zaxa 'win', mana 'count', baxa 'cry', xala 'fall ill', saxa 'swim', dama 'be similar', raza 'lose weight', and bana 'build'.

If we assume that these verbs have biradical roots, then these roots must be marked in the lexicon for being obligatorily mapped onto the CVCV template and none of the other Pa'al templates. We do find homophonous biradical roots mapped onto the various Pa'al templates, e.g., rc in racac 'crush', rac 'run', and raca 'want'. Although the root is ambiguous none of the conjugated verbs is.

Another analysis, more in agreement with McCarthy's analysis, would posit no new template, but will derive this third group from a triradical root, mapping it onto the CVCVC template, later dropping the final consonant. Indeed such is the traditional treatment, deriving all these verbs from a root with the third consonant being the semivowel y which drops stem-finally.

However, for modern Hebrew there is weak phonological motivation for such an analysis, as the y doesn't show up in any of the inflectionally-related forms of the verb. The only case where a final y does show up is in the passive participle, e.g., kanuy 'bought', šatuy 'drunk', 'asuy 'done', from the roots kny, šty, 'sy, respectively (compare these with the passive participle of regular verbs, e.g., šavur 'broken' versus šavar 'break', from the root šbr). However, only very few of the roots in this group can be instantiated in the passive participle, casting doubt as to whether kanuy, šatuy, etc., are derived rather than lexical (i.e., we do not find *zaxuy from zaxa, *razuy from raza, *xaluy from xala, etc.).

Nevertheless, we do find support for the final semivowel analysis in deverbal action nominals derived from Pa'al verbs. With a regular verb this Word Formation Rule yields zrika 'throwing' from zarak 'throw', šmira 'guarding' from šamar 'guard'. With a putative final semivowel the y shows up in the deverbal nouns, as in yəriya 'shooting' from yara 'shoot', kniya 'buying' from kana 'buy', zxiya 'winning' from zaxa 'win'.

This kind of support for the final semivowel is not very convincing if we bear in mind the irregular semantic relations between many deverbal nouns and their bases and the absence of many deverbal nouns corresponding to existing bases. This suggests that we are not dealing here with a synchronic derivational relationship, i.e., in modern Hebrew the deverbal noun is lexical rather than derived and we cannot find motivation for a final y in the verb because we find it on the surface of a form not related to the verb by a synchronic derivational process. Thus we do not find *məxiya from maxa 'protest', nor *raziya from raza 'lose weight', etc. Also, štiya means 'beverage' as well as 'drinking', kniya means 'purchase' (from kana 'buy'), yəriya means 'shot, n.' (cf. yara 'shoot'), and re'iya means 'eyesight' (cf. ra'a 'see'). On the other hand, we have many CcCa noun forms without a corresponding CaCaC verb.

The two Pa'al templates CVCVC (e.g., šamar 'guard') and CVCV (e.g., kana 'buy') can be collapsed into one template CVCV(C), but the root list will have to indicate which root is mapped onto which of the two possible realizations of the template. A better solution is to collapse both templates in terms of syllable structure: both templates are disyllabic, the last syllable capable of being either closed or open. Analysis in terms of syllable structure allows greater generalization than that captured by the notion of the prosodic template.

5.4. PI'EL AND HITPA'EL BINYANIM

Pi'el and Hitpa'el in Hebrew correspond to the second and fifth binyanim, respectively, of Arabic. In Biblical Hebrew the second root consonant is geminated, as in Arabic, so we can have here exactly the same

analysis McCarthy proposed for Arabic, specifically, the Pi'el template is CVCCVC, the Hitpa'el template is CVCCVCVC, and the Erasure rule that ensures medial gemination. Only the vowel melodies are different: ia is for Pi'el and Hitpa'el perfective active (the a is changed to e word-finally, e.g., Biblical Hebrew sipparti 'I told' vs. sipper 'he told'; hitlabbašti 'I got dressed' vs. hitlabbeš 'he got dressed').¹² The gutturals ʔ, ʕ, ħ, h and r are never geminated. So within the prosodic analysis these will be first geminated, and later there must be a rule that degeminates them.

In contrast to Biblical Hebrew, modern Hebrew has no phonetic gemination anywhere morpheme-internally. Thus we have siper 'tell' (cf. Biblical sipper), hitlabeš 'get dressed' (cf. Biblical hitlabbeš), etc. Since gemination never shows up on the surface there is no motivation to posit gemination in some step in the derivation. This will lead us to the revision of Pi'el and Hitpa'el templates for modern Hebrew. McCarthy noted that a rule such as Second and Fifth Binyanim Erasure is very costly and the apparent loss of this rule in modern Hebrew would be confirming such a view. However, if it were that the rule of Erasure was lost in modern Hebrew, the template remaining unchanged, we would get derivations as follows (after application of the first and third conventions):¹³

- (13) Pi'el Hitpa'el
- CVCCVC (sifrer) $\begin{array}{c} \mu \\ \swarrow \downarrow \searrow \\ h \quad t \\ | \quad | \\ CVCCVCVC \end{array}$ (hitlavšeš)
- $\begin{array}{c} \swarrow \downarrow \searrow \\ spr \end{array}$ $\begin{array}{c} \swarrow \downarrow \searrow \\ lbs \end{array}$

However, in modern Hebrew we have siper and not *sifrer, hitlabeš and not *hitlavšeš. Clearly these will have to be derived from new prosodic templates, namely CVCVC for Pi'el and CVCCVCVC for Hitpa'el as follows:

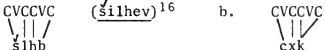
- (14) a. CVCVC -Pi'el template b. $\begin{array}{c} h \quad t \\ | \quad | \\ CVCCVCVC \end{array}$ -Hitpa'el template
- $\begin{array}{c} \swarrow \downarrow \searrow \\ spr \end{array}$ (siper) $\begin{array}{c} \swarrow \downarrow \searrow \\ lbs \end{array}$ (hitlabeš)

What is remarkable about this output is that the medial stop remains unspirantized although there is a rule of Spirantization in Hebrew spirantizing the stops p, b, and k after a vowel.¹⁴ Thus we have safar 'count' from spr, šavar 'break' from šbr in Pa'al vs. šiber 'break into pieces' from šbr in Pi'el. This failure of the medial root consonant in Pi'el and Hitpa'el to spirantize can be readily accounted for if we assume that when Spirantization applies the medial stop is not preceded by a vowel, but rather by a consonant, motivating an analysis in which Pi'el and Hitpa'el templates have not been changed in modern Hebrew, rather, they are identical to Biblical Hebrew templates. Only after Spirantization applies does Degemination apply.

Such an analysis would require an odd degemination rule since after Spirantization we have the intermediate stage sifper and hitlavbeš, the first geminate meeting the structural description of Spirantization. Degemination would then apply to non-identical segments. However, it can be argued that Degemination is a functional phonological rule having the effect of preventing homorganic consonant clusters, akin to the constraint discussed by Schwarzwald (1974). If we accept this analysis we have a problem in Biblical Hebrew, since it too had the rule of Spirantization (covering the stops g, d, t, as well), so we must somehow prevent sipper from becoming *sifper. (The environment for Spirantization is clearly post-vocalic, not inter-vocalic. E.g., savta, or more commonly after devoicing assimilation safta, 'grandmother' (/sabta/), sifrer 'put numbers', from spr.)

Another solution to the failure of Spirantization to apply in Pi'el and Hitpa'el is to say that Pi'el and Hitpa'el in modern Hebrew have the templates as in (14) and that the rule of Spirantization is morphologically restricted in that it does not apply in Pi'el and Hitpa'el. This solution is preferable, more natural and less abstract in light of modern Hebrew morphology and phonology.

However, quadriradical roots conjugated in Pi'el and Hitpa'el, reduplicated biradical roots and the phenomena of spreading of triradical roots in Pi'el and Hitpa'el dictate positing for modern Hebrew the old Biblical templates, namely, CVCCVC and CVCCVCCVC, in addition to the templates in (14). Thus, in Pi'el, we find quadriradical roots like šilhev 'set alight' (root šlhb), sirbel 'make awkward' (root srbl), 'imlen 'starch' (root 'mln), kirsem 'munch' (root krsm); reduplicated biradical roots like gilgel 'roll, v.t.' (root gl), sigseg 'prosper' (root sg), bilbel 'confuse' (root bl); and spread triradical roots like sifer 'put numbers' (root spr), cixkek¹⁵ 'chuckle' (root cxk), 'išrer 'ratify' (root 'šr). We find exactly parallel phenomena in Hitpa'el: Quadriradicals - hitbargen 'become bourgeois' (root brgn); Reduplicated biradicals - hitbalbel 'become confused' (root bl); Spread triradicals - hictaxkek 'chuckle to oneself' (after metathesis of c and t; root cxk). To illustrate:

- (15) a. CVCCVC (šilhev)¹⁶ b. CVCCVCCVC (cixkek)


The prohibition against many-to-one associations prevents the above verbs from being derived from the template in (14a). It seems, then, that the template for modern Hebrew Pi'el should be captured in terms of syllable structure, stating simply that the Pi'el template is bisyllabic, rather than positing the conflicting templates CVCVC (e.g. siper) and CVCCVC (e.g., šilhev). Similarly in Hitpa'el.

The spreading phenomenon of triradical roots in Pi'el seems to constitute strong evidence for McCarthy's analysis of the Arabic Second and Fifth Binyanim (and the corresponding Pi'el and Hitpa'el in Hebrew). It seems that the spread verbs are just cases where the putative rule of Erasure simply fails to apply. Interestingly we find cixkek 'chuckle' (see 15b) where the Erasure rule has failed to apply, alongside cixek 'laugh' with application of Erasure, both derived from the root cxk. Other examples

are: 'ivrer 'ventilate' (root 'vr, from 'avir 'air, n.'), kidrer 'dribble (a ball)' (root kdr, from kadur 'ball'), šiklel 'weigh (statistics)' (root škl, cf. šakal 'weigh'), 'irbev 'mix' (root 'rb, cf. Pi'el 'irev 'mix' from the same root), šixrer 'free' (root šxr). There are around thirty such verbs showing spreading of the third consonant in Pi'el.

We can therefore mark these roots as not undergoing Erasure. The question then arises as to why Erasure fails to apply in these forms, a minority of Pi'el verbs. Certainly there is no free variation in the application of the Erasure rule. A possible answer may lie in the facts that the spread triradical roots are more characteristic of modern as against Biblical Hebrew verbs and that the spread verbs are mostly denominative, i.e., they are usually derived from a noun functioning as the base.

5.5. MULTIRADICALS IN PI'EL

Multiradicals in Pi'el seem to strongly militate against the prohibition against many-to-one associations and thus pose a problem for the proper formulation of the Pi'el prosodic template. Pi'el is the productive binyan par excellence in modern Hebrew, accommodating many multiradical roots and deriving many denominatives (Cf. Bolozky, 1978).

Consider the denominative tilgref 'telegraph, v.' (root tlgrf, from telegraf 'telegraph, n.'). Its mapping would look like (16):

- (16) CVCCVC -Pi'el template
 $\begin{array}{c} \backslash \backslash \backslash \backslash \\ \text{tlgrf} \end{array}$ (tilgref)

Such mapping is ruled out by the prohibition against many-to-one associations. The principles of the autosegmental theory predict the following derivation, with f floating:

- (17) CVCCVC (tilger)
 $\begin{array}{c} \backslash \backslash \backslash / \\ \text{tlgrf} \end{array}$

*tilger is the wrong output. The mapping in (16) is even more problematic to the theory because we do not simply get the anchoring of the floating f to the last C-slot (i.e., we do not have *tilgerf) after application of the first convention. The form tilgref is an apparent counterexample to the first universal convention of association in that the root-internal r is associated with an already occupied C-slot.

Some additional multiradicals mentioned in Yannay (1974a,b) are: 'ibstrekt 'abstract, v.' (root 'bstrkt, from 'abstrakt 'abstract, n.' - student slang); sinxren 'synchronize' (root snxrn, from sinxrun 'synchronization'); cintrəfeg 'centrifuge, v.' (root cntrfg, from centrifuga 'centrifuge, n.');

stingref 'take shorthand' (root stngrf, from stenografya 'shorthand'). It should be noted that in many of these multiradicals the presence of a sonorant (n, r or l) in the consonant cluster eases the pronunciation of the cluster. This seems to be the constraint on the formation of multiradical Pi'el verbs.

In this group we also find a spread quadriradical: flirtet 'flirt, v.' (root flrt, from flirt 'flirt, n. '), for which we have the mapping as in (18), which is ill-formed in McCarthy's theory:

- (18) CVCCVC (flirtet)
 N // \
 flrt

Whereas the autosegmental theory predicts the derivation in (19):

- (19) CVCCVC (filret)
 | // \
 flrt

*filret is the wrong output.

Bolozky (1978) notes that at least for borrowed words innovators tend to preserve the relationship between nouns and verbs derived from them, "so as to have a kind of paradigmatic uniformity across syntactic categories... Since realization as *filret would obliterate the original clustering of the noun, the innovator resorted to reduplication of the last consonant and sticking the stem-final vowel between the two identical consonants - flirtet 'flirt (V)'... Reduplication is an accepted device in Hebrew to express diminution." (Bolozky, 1978, p. 122).

The idea of a derivational process having access to the complete source word (i.e., flrt as input to flirtet rather than only the root flrt) is impossible within McCarthy's theory, where it is only the root which is mapped onto a new prosodic template.

5.6. PILPEL AND HITPALPEL

Verbs with a reduplicated biradical root, very frequent in Hebrew and widespread in Tigre, pose a very serious problem for the autosegmental theory, to solve which McCarthy (1981) introduces a powerful new device of root morpheme reduplication (assuming, as it were, an auto-autosegmental level). This is not a simple slight extension of the theory, but a major departure from it, weakening considerably its empirical content.

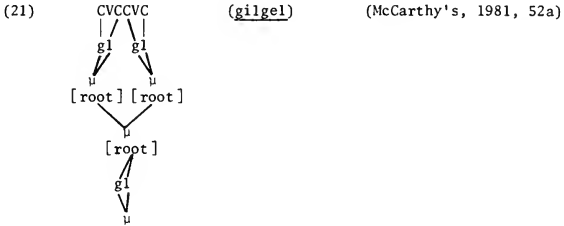
The problematic verbs are such as gilgel 'roll (v.t.)', and hitgalgel 'roll oneself' (root gl. Cf. galal 'roll (v.t.)'). The mapping of the root gl onto Pi'el, required to yield the correct result would be as in (20):

- (20) CVCCVC (gilgel)
 V // \
 gl

However, this derivation is ill-formed in that the autosegmental theory prohibits the crossing of lines of association. We can therefore relax this prohibition in the case of Pilpel and Hitpalpel, with concomitant weakening of the theory. It is implausible also that the crossing of lines of association is simply very costly for the grammar employing it (that is if 20 is the only solution to reduplicated roots), as this phenomenon is very prevalent in Tigre, for example, and also Hebrew exhibits many such verbs.

A second solution is to posit a quadriradical root, e.g., glgl for gilgel. This will entail a great loss of generality as many of these verbs are clearly related to biradical roots, e.g., gilgel 'roll (v.t.)' vs. galal 'roll (v.t.)', both derived from the root gl.

McCarthy (1981) opts for a process whereby "the root is reduplicated by one-to-one morpheme-to-morpheme association, and then elements of these morphemes are mapped onto the prosodic template... reduplication is accomplished here by mapping one root morpheme onto two root morpheme positions in a separate tier." (p. 408). For example:



This kind of solution is a radical departure from the autosegmental theory initially adopted by McCarthy. There is no motivation for it within the theory and certainly there is no independent motivation for the process invoked to account for Pilpel and Hitpalpel. There isn't much that distinguishes this process from a transformational treatment of reduplication, which leads us to conclude that transformational notation is needed for at least some morphological processes.

5.7. Pə'AL'AL¹⁷

There is a very limited number of verbs in Hebrew showing a reduplicated last syllable, belonging to a binyan called Pə'al'al. Thus corresponding to Pa'al saxar 'go about' we find the reduplicated form saxarxar 'palpitate', both from the root sxr. Other Pə'al'al verbs are: 'ahavhav 'flirt' (from ahav 'love'): xavarvar 'become slightly pale' (from xavar 'pale, v.i.') (Yannay, 1974a,b, lists seven such verbs).

McCarthy (1981) notes that the prosodic template of Pə'al'al is anomalous in Hebrew, since it involves an otherwise nonoccurring CVCVCVC prosodic template. McCarthy suggests that it is derived from the CVCVC template of Pa'al by the suffixation of the syllably CVC, and that the syllables of Pa'al are mapped - left-to-right - onto the syllables of this new template. Thus "a further extension of this theory also handles the forms [of Pə'al'al]" (p. 409).

This, of course, introduces a new type of rule to the theory - syllable reduplication - unlike any other rule previously posited. Recall that McCarthy posits a rule of Root Morpheme Reduplication to account for

Pilpel and Hitpalpel forms. Intuitively, the reduplication in Pilpel, Hitpalpel and Pə'al'al is of one and the same type - final syllable reduplication - yet in McCarthy's analysis they are two unrelated phenomena, generated by distinct rules.

The formulation of the syllable reduplication rule for Pə'al'al makes theoretically possible a process of non-final syllable reduplication - a process never attested in Hebrew and Tigre (i.e., a process allowing such forms as papa'al, etc.)¹⁷. Indeed, that the theory is not so constrained is suggested by McCarthy (1981) in his analysis of the reduplicated Tagalog pag-lalakad 'walking' from um-lakad 'walk' (p. 413, number 59).

In short, McCarthy started with a nice theoretical framework and ends up with an unconstrained, overly permissive one, severely undermining his ostensible aim of restricting the power of morphological rules.

Although in Hebrew there are very few Pə'al'al verbs, there are quite a few nouns and adjectives with reduplicated last syllable, usually having a diminutive effect on the base meaning. E.g., yərakrak 'light green' from yarok 'green'; bcalcal 'small onion' from bacal 'onion'; zkankan 'small beard' from zakan 'beard'; xataltul 'kitten' from xatul 'cat'; cmarmoret¹⁹ 'tremor' (cf. camar 'shiver, v.').

It is not at all obvious that the rules invoked by McCarthy to account for reduplication phenomena such as the above are in any way less powerful and to be preferred to the transformational approach taken by Aronoff (1976) and Lieber (1980).

5.8. WHOLE WORDS, NOT ROOTS, AS INPUT TO VERB DERIVATION

It is crucial for McCarthy's system that when a word is derived from another, only the root of the base or source word is available for the derivation of the new word. Thus, in a case of a verb in the second binyan of Arabic derived from a first binyan verb, the second binyan derivation need only take the root morpheme of the source word, the template of the second binyan being unique to this binyan. It is this very behavior of the root functioning as an independent unit in word formation that motivated McCarthy's formulation of a separate autosegmental tier for the root morpheme.

However, there are word formation rules in Hebrew suggesting that the Word Formation Rule has access to the whole word, rather than solely to the root of the base, which is then mapped onto the prosodic template of the new word. We find this behavior in denominal verbs. In Hebrew, corresponding to the about seven verb conjugations (binyanim), we find a considerably larger number of noun declensions (mishkalim 'weights, matrices', in Hebrew) - noun prosodic templates onto which are mapped roots, affixes and vowel melodies to yield nouns.

One such template is CVCCVC²⁰, and with the vowel melody it defines professionals (very much like the English -er). E.g., ganav 'thief', sapan 'seaman', zamar 'singer', zaban 'seller', napax 'blacksmith', sapar 'barber', sartat 'draftsman'.

Another template is CCVCV and with the vowel melody ia it defines the deverbal noun of Pa'al verbs. E.g., šmira 'guarding', from šamar 'guard'. Given a verb in Pa'al the deverbal noun Word Formation Rule need have access only to the verb's root morpheme to map it onto the deverbal noun template.

Some of these noun templates have an affix added. E.g., forming abstract nouns from the template CVCCVC with the prefix t- and the vowel melody au to give words like tašlum 'payment' (cf. šilem 'pay'), talmud 'study' (cf. lamad 'study, v. '), tanxum 'condolence' (cf. nixem 'condole').

Many of these nouns can serve as the base for forming new denominal verbs. McCarthy's theory seems to predict that such derived verbs will take only the root of the base and map it onto a given verbal template. However, in many of these verbs all the consonants of the base are used in the derived verb, root plus affixes.

For example, mafte'ax 'key' is derived from a template CVCCVC²¹, the prefix m-, the vowel melody ae, and the root ptx (cf. patax 'open'). Other examples in this mishkal are: mazrek 'syringe' (cf. zarak 'throw'); mašpex 'funnel' (cf. šafax 'spill'); maklet '(radio) receiver' (cf. kalat 'receive'). This mishkal forms, then, tools and appliances.

The noun mafte'ax 'key, index' can serve as a base for a verb in Pi'el, but instead of the derived verb mapping only the root ptx to yield pite'ax we get the verb mifte'ax, in which both the prefix and the root are mapped onto the Pi'el template. This verb means 'use a key, make a key, index'. It might be argued that there already is a Pi'el verb having the root ptx, namely pite'ax 'develop', but usually in cases of occupied slots the derivation is simply blocked or another binyan is chosen.

Other examples: misgeret¹⁹ 'frame, n.' (cf. sagar 'close, shut') yields the verb misger 'frame'. Here there is no occupied slot in Pi'el, i.e., siger is possible and unoccupied. The noun takciv 'budget' (cf. kacav 'allot, ration') yields likewise the verb tikcev 'budget'.

Such word formation processes support a word-based morphology, as against the root-based rules within McCarthy's analysis. One can, of course, claim that for such denominal verbs the root base is reanalyzed as including the prefix (i.e., the root of misgeret 'frame, n.' is msgr and not sgr, etc.). Such an analysis is not easily accommodated in McCarthy's autosegmental analysis, as the prefix and the root are represented on separate autosegmental tiers.

6. CONCLUSION

We saw that the principles and devices proposed in McCarthy's analysis of Arabic also handle to a large extent Hebrew morphology. Yet here as there crucial reference is made to the rule of Erasure to account for medial gemination and to morpheme and syllable reduplication rules to account for reduplication in Semitic, and we raised serious questions about the unconstrained character of these rules, and lack of independent motivation for such types of rules.

Although McCarthy's analysis offers many insights into Semitic morphology, it is not clear that by the modification of autosegmental theory to account for the phenomena of gemination and reduplication, we end up with a theory that is more restrictive and less powerful than a theory that treats these phenomena by resorting to transformational morphological rules.

NOTES

*I would like to thank Michael Kenstowicz and Charles Kisseberth for their comments on an earlier version of this paper.

¹McCarthy adopts the use of the Hebrew word binyan for Verb Conjugation (pl., binyanim) as more felicitous than the Latin "conjugation", which has misleading connotations when applied to Semitic morphology.

²Henceforth, the μ (for 'morpheme') notation will not be indicated on melodies. However, it will be continued to be assumed that it is there.

³Unless otherwise stated, all Hebrew examples are from modern Hebrew, and all Hebrew verbs are given in their third person, singular masculine past form, which usually coincides with the past stem form.

⁴Given such a rule as Vowel Association, one might also posit a similar Consonant Association rule in the second and fifth binyanim, which associates the last root consonant prior to the universal conventions of association. E.g., this rule would convert (22a) into (22b), to which the first and third conventions would apply to yield the geminated form in (22c):

(22)	a. CVCCVC	b. CVCCVC	c. CVCCVC	(kattab)
	ktb	ktb	ktb	

This analysis would do away with the need for the Erasure rule in the Second and Fifth binyanim.

⁵Although McCarthy discusses Biblical Hebrew, the phenomena he discusses occur in modern Hebrew as well.

⁶The second k is spirantized, although in most cases the second consonant in Pi'el is not spirantized. We would expect to find kikev. However, this is a denominative verb derived from the noun koxav 'star', and the spirantized k is kept in the derived verb. Likewise tilfen 'phone, v.', from telefon 'telephone, n.', and not *tilpen. The b spirantizes word-finally.

⁷The relation between QIV and XI is not so obvious. Cf. McCarthy (1981, p. 395).

⁸This is an apparent counterexample to Schwarzwald's analysis. The homorganic t and s appear in a consonant cluster, e.g., 'etsos 'I'll effervesce', hitis 'cause to effervesce, incite'. Schwarzwald notes that there are a

few instances of the clusters ts, tʃ, tc, tz, mainly word-initially, where in Biblical Hebrew there was an epenthetic schwa breaking the cluster. In modern Hebrew Schwarzwald proposes that these clusters be analyzed as one phoneme c or ç. This analysis is unavailable in 'etsos, where ts is obviously not one phoneme (cf. tasas). However, such cases are indeed rare.

⁹ Under McCarthy's analysis cac and zaz would be uniradical, derived from the roots c and z, respectively (unless one would posit in these phonetically biradical verbs an underlying medial semivowel). In traditional terms, uniradical roots are extremely rare in Semitic.

¹⁰ It was suggested by some Semitists (cf. Moscati, 1969, p. 72, Frajzyngier, 1979) that proto-Semitic had both biradical and triradical roots with corresponding biradical and triradical templates. Some time thereafter the triradical template took precedence, and the biradical roots were mapped onto triradical templates, yielding the *verba mediae geminatae*. It is certain that at that stage the monosyllabic verbs like qam 'get up', sam 'put', were triradical (having a medial semivowel) and that the semivowel was lost after the reduplication of biradical roots occurred, otherwise we would have had qamam from qam, samam from sam, etc. But if we assume that the proto-Semitic biradical roots are biradical also synchronically, as McCarthy's analysis seems to claim they are, then the Hebrew monosyllabic verbs pose a problem.

¹¹ Blau (1974, p. 188) claims that some monosyllabic verbs cannot be reasonably derived from a triradical root. Moreover, we do find some triradical roots with a surface medial vowel, e.g., gawa^c 'die', cawax 'shriek', 'ayav 'be a foe', forms which would prevent us from assuming a rule of semivowel drop in the monosyllabic verbs. (It should be noted that the semivowel w is phonetically realized in modern Hebrew as the fricative v, except for some Oriental dialects).

¹² Another difference are the different prefixes of Hitpa'el and the Arabic Fifth Binyan.

¹³ The output shows the effect of Spirantization on p and b.

¹⁴ For modern Hebrew the rule of Spirantization cannot be stated so simply. There are too many apparent counterexamples.

¹⁵ There are two k's in modern Hebrew, one that spirantizes (the reflex of the Biblical and proto-Semitic k), and one that doesn't (the reflex of Biblical and proto-Semitic q). Cf. sakar 'survey' (from *q) vs. saxar 'dam up' (from *k).

¹⁶ After Spirantization.

¹⁷ The schwa is not underlying; it is sometimes inserted to break word-initial consonant clusters. McCarthy's discussion of these forms in Biblical Hebrew suggests that he assumes that the schwa is underlying.

¹⁸ Although Littmann and Hoefner (1956-1962) list many $C_1C_2C_3C_2C_3$ forms in Tigre, I found no $C_1C_2C_1C_2C_3$ forms. Hebrew has only one Papa'al form. This is the verb yafyafa 'be extremely beautiful' (first attested in Psalm 45,3 and retained in modern Hebrew) from yafa 'be beautiful' (root ypy). One can doubt, of course, the triradicality of this root, assuming a biradical root yp instead, thus dissolving the counterexample.

¹⁹ The t is the feminine singular morpheme.

²⁰ This is the same template posited for Biblical Hebrew Pi'el binyan (only the vowel melody differs). As with Pi'el forms, the examples, taken from modern Hebrew, do not show gemination and spirantization.

²¹ The epenthetic 'a in mafte'ax is inserted before a word-final x which is the reflex of the Biblical h. It is not inserted before a spirantized k, e.g., melex 'king' (root mlk).

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STATISTICAL ANALYSIS OF CONVERSATIONAL ESPERANTO,
WITH DISCUSSION OF THE ACCUSATIVE*

Bruce Arne Sherwood

Taped Esperanto conversations among skilled speakers were transcribed and statistically analyzed. The frequencies of phonemes, two-phoneme sequences, and grammatical categories were obtained. Statistics on the use of compound and derived words are presented. The most interesting data deal with the use of the accusative. It is shown that spoken Esperanto is dominantly SVO, and that other constituent orders are quite rare and restricted to special constructions. There is a discussion of the sociolinguistic and language-planning consequences of the observed accusative usage.

1. Introduction

Statistical analyses of Esperanto usage have typically been based on written texts (e.g., van Themaat 1977). Sociolinguists have emphasized not only that speech can be quite different from writing, but that informal speech is in many ways the most representative of the various ways in which people speak. Sociolinguists go to great lengths to devise interview strategies which will elicit informal speech. It would be interesting to analyze informal Esperanto speech. Of general interest, there might be special effects due to native-language influence, the greater emphasis on writing and reading due to the nature of Esperanto usage, and the possibly greater conscious awareness of formal rules on the part of Esperanto speakers. More narrowly, it is interesting to see how the language is actually spoken, in possible contrast to its prescriptions.

The audio tape service of the Esperanto League for North America (Box 1129, El Cerrito CA 94530) includes in its catalog of recordings not only formal speeches but also conversations at the 1972 World Esperanto Congress held in Portland, Oregon. These conversations are presumably more self-conscious than would be ideal for some purposes, but they at least provide a more natural data base than writings or formal speeches, which may simply be readings of written papers. One of the participants (Duncan Charters, private communication) reports that during the conversations headphones and special microphones were worn in order to improve the audio quality, which may have tended to make the speech more self-conscious than desirable for the present purpose. However, another participant (William Auld, private communication) feels that the conversation between him and Peter de Smedt was rather natural despite the apparatus, partly because the taped conversation was a continuation of a conversation already in progress.

Only the pauses seemed awkward, due to the consciousness that one should keep going, and some slight embarrassment is noticeable at these points on the tape.

It was hoped that contrasts could be obtained for diverse native-language backgrounds. Unfortunately, among the relatively small number of taped conversations there are no native speakers of non-Indo-European languages, which is a disappointment. Nevertheless, the present analytical study may provide a framework and a stimulus for more field work to obtain samples from more diverse and more representative types of speakers. When this study was nearly completed, it was learned that the International Cultural Service (Amruševa 5/I, 41000 Zagreb, Yugoslavia) is presently processing fifty thousand words of speech recorded at recent Esperanto World Congresses, in order to obtain conversational word frequencies for designing better teaching materials. As they are using a computer for this analysis, perhaps they will extend their work to other aspects of these conversations.

2. Methodology

The conversational material was transcribed and typed into a computer file for statistical processing. In order to facilitate this processing, the first letters of morphemes internal to words were indicated by capital letters, so that neKredeble 'unbelievably', for example, was entered in the form neKredEble. Note that grammatical endings were not indicated unless they were internal to a word, as in unuAfoje 'for the first time' or siNTeno 'attitude', since it is possible to identify final grammatical endings by computer program (Sherwood 1981a, 1981b). Also to facilitate computational processing, participle endings were indicated by capitalization, as in neKredAnto 'believer' or korektita 'corrected'.

The frequencies of compound words, grammatical categories, and phonemes were extracted by computer program. Statistics on the order of major constituents (subject, verb, object) were determined by hand, as it appeared too difficult to do this by program. In Esperanto, the dominant order is SVO but, at least in writing, other orders are quite common, and it is of interest to have some measure of this property for conversations. Although the direct object is marked by the accusative ending "-n", there are some other uses of the accusative case, which makes it difficult to identify constituent order by computer program. Another class of items which was treated by hand were inflected words (such as a verbal root used as a noun).

Compound words for the purposes of this treatment were defined simply as words which contained more than one morpheme, not counting grammatical endings. Included were not only the relatively few compounds composed of full roots such as laborRitmo 'work-rhythm' but also the many compounds made by the highly productive roots traditionally called "affixes", such as junUloj 'young people' and movAdo 'movement', and even the words formed with participle endings, such as kredAnto. The rationale for considering junUloj as a compound is that ulo by itself is a person, and since ul is as free a morpheme as jun 'young' it seems inappropriate to call ul a suffix, although that is what it has traditionally been called. The example of movAdo 'movement' is more problematical, in that it may seem more

appropriate to analyze the word as having ad 'continued action' as a suffix which modifies mov 'move', rather than to think of the word in terms of "move-like continued action".

In individual cases the distinction between compounding and suffixation seems to involve somewhat subjective judgement, within the system of Esperanto word-formation. It seems preferable to call all multi-root words "compounds", especially since the so-called "affixes" are actually morphemes which are as free as any other content morphemes. (By "content" morphemes I mean those which require grammatical endings, unlike the "function" morphemes such as prepositions which do not require grammatical endings.) As for participle endings, despite the fact that anto or into 'present or past actor' are almost never used by themselves in Esperanto, such usage is not "ungrammatical" and is similar to the use of "ism" in English. In any case, all "compound" words are listed in Appendix 4 so that the reader may re-analyze them as desired.

In this analysis "inflected" words are simply those whose grammatical endings are different from the basic grammatical category of the root, as determined by checking in a standard dictionary (Wells 1969). For example, Wells lists the adjective simila 'similar' as the base form, so the verb similas 'is similar to' is counted as an inflected word. In the introduction to his dictionary Wells (1969:7-9) gives a good summary of the traditional theory that each Esperanto content root has an inherent grammatical category. Szerdahelyi (1976, 1978) has criticized this theory, arguing instead that full words are borrowed from national languages, from which a category-less root is formed by autonomous Esperanto processes. It appears that both theories lead to similar practical results. There is at least some psychological reality to the notion of inherent category, in that I nearly always found I had guessed the category correctly when I checked doubtful cases in the dictionary. A likely cause is that the Esperanto roots, coming mainly from European languages, have overtones of grammatical category that speakers of European languages will usually find natural. Another cause may be that usage patterns within Esperanto itself have over the years confirmed the category assignments of its roots, even for non-European speakers. That is, simila is a commonly-used adjective and is more common than similas, whereas movas 'moves' is much more common than moval 'motional'.

3. Data and results

The Scot William Auld, one of the most outstanding poets writing in Esperanto as well as a perceptive essayist on literary matters, and the Flemish Peter de Smedt were recorded in an interesting conversation dealing with the Hungarian Esperanto poet and novelist Julio Baghy, with the nature of translations of poetry into Esperanto, and with the need for definitive historical studies of the Esperanto literature. In a thirty-minute conversation each man spoke for almost exactly fifteen minutes. Auld spoke 1782 words (119 words per minute) and De Smedt 1948 words (130 words per minute). In no case did there seem to be any ambiguity as to how to break up the speech stream into "words", basically because of the invariant penultimate stress and the distinctive grammatical endings.

Appendix 1 gives the phoneme frequencies for this conversation, Appendix 2 gives the frequencies of two-phoneme sequences, and Appendix 3

gives the frequencies of the various grammatical categories. These data are presented mainly because they were easily obtainable, but they can be of use in certain applications. For example, the frequencies of two-phoneme sequences have been used to plan the construction of a diphone library for purposes of speech synthesis in our laboratory.

In Appendix 4 are listed the compound words, including participles and words made with productive "affixes". Estimating the standard deviation as the square root of the number of compound words found, (7.6 ± 0.7)% of Auld's words were compounds (136 out of 1782), and (8.9 ± 0.7)% of de Smedt's (173 out of 1948), which are equal frequencies within the estimated errors. It is noteworthy that most of these compound words are themselves quite common, being encountered frequently in texts and often even as specific entries after the root in large dictionaries. There are very few really novel coinages made on the spot during the conversation. Rather, the two men pretty much limited themselves to compounds that have already been used extensively in the language. I estimate that only about three percent of the compounds are novel, in that about that many words struck me as fresh and unusual.

Of Auld's 1782 words, 211 or ($11.8 \pm .8$)% were inflected words (e.g., a verbal root forming a noun), including 6 nouns made with "adjectival" participle endings, such as kredAnto 'believer'. Of these 211 inflected words, 50 were compound (multi-root) words found in Appendix 4, such as florEce 'in a flowery way'. For de Smedt, out of 1948 words, 232 or ($11.9 \pm .8$)% were inflected (of which 8 were participial nouns), with 60 of these appearing among the compounds listed in Appendix 4. The frequencies are:

	Auld	de Smedt
inflected only	9.0%	8.8%
compounded only	4.8%	5.8%
inflected compounds	2.8%	3.1%
totals	16.6%	17.7%

All the inflected words are shown in Appendix 5. Like the compounds, the inflected words for the most part are forms which have often been seen before. Only a few percent of the words were novel coinages, though at one point in the conversation the two men were themselves amused at de Smedt's invention of the word papere 'in a paper-like way'.

The most interesting data concern constituent order, usually called word order, the latter being a somewhat misleading term for describing the sequence in the sentence of the major constituents subject, verb, and object. There were 179 main clauses where a transitive verb (either finite or infinitive) referred to a direct object. Despite the potential freedom of constituent order in Esperanto, which is often exploited in writing, there were only 15 examples out of 179 in which the order was not subject-verb-object (SVO; VO in the case of infinitives). Moreover, of these 15 cases, eight (examples 1-7 and 10 below) involved merely moving the demonstrative object pronoun tion, of which seven were of the OSV form with tion followed by a personal pronoun followed by a verb, and the other (example 7) was SOV, also with a personal pronoun subject (vi tion faris 'you that did'). Seven of these eight tion examples were due to Auld.

Four examples (11-14 below) involved a personal object pronoun or the common word multon 'much' preceding an infinitive, all due to de Smedt, who also moved the simple object nenion 'nothing' before a verb (15). This leaves only two examples of constituent orders other than SVO involving uncommon nouns (examples 8 and 9). It appears that these two speakers have developed individual non-SVO patterns which they use for special emphasis, but that they very rarely venture outside the confines of these stereotyped patterns. For completeness, it should be mentioned that there was one question involving (normal) OSV order: Kion vi opinias? 'What do you think?'. Here is a complete listing of all 15 non-SVO examples:

- | | | |
|------|---|--|
| | Auld | |
| (1) | tion oni povas bedaŭri | 'one can regret that' |
| (2) | tion oni faras | 'one does that' |
| (3) | tion mi jam diris | 'I already said that' |
| (4) | ne tion ni bezonas | 'we don't need that' |
| (5) | tion oni faras | 'one does that' |
| (6) | tion oni povas fari | 'one can do that' |
| (7) | vi tion faris | 'you did that' |
| (8) | min emocias, min inspiras ĉiuj aspiruoj | |
| | | 'all aspirations move me, inspire me'; said with great deliberateness and emphasis |
| (9) | mi bibliografion faras | 'I am making a bibliography' |
| | de Smedt | |
| (10) | tion mi ne diris | 'I didn't say that' |
| (11) | ĝin fari | 'to do it' |
| (12) | sin defendi | 'to defend oneself' |
| (13) | nin ĝojigi | 'to make us joyful' |
| (14) | multon lerni | 'to learn much' |
| (15) | mi nenion plu aŭdis | 'I heard nothing more' |

It is striking that except for aspiruoj 'aspirations' and bibliografion 'bibliography', the only words which have been moved out of SVO order are very common words. It should also be pointed out that among the 179 main clauses involving transitive verbs there are three examples where the object is the title of a book, without accusative endings, and in all of these examples the order is SVO. This latter observation may not have great significance, in that even in formal writing one sees considerable vacillation between declining or not declining proper nouns and book titles.

Another interesting aspect of this conversation is that while de Smedt six times exploited the freedom of constituent order which comes from the explicit accusative marker -n, he made errors just as often in his use of this marker. (Auld made no case errors.) On two occasions de Smedt failed to add the -n to a direct object and four times he attached an -n unnecessarily. In sentences 16 and 17 shown below, the -n has been dropped in simple SVO situations, perhaps due to the heavy dominance of SVO order

which makes the explicit accusative marking rather redundant. In sentence 18, the complement of the intransitive verb "become" has incorrectly been given the accusative endings, probably due to the superficial resemblance to an SVO situation. The explanation for case errors in sentences 19 and 20 may simply be that the speaker started out intending to make an object-initial construction but got sidetracked by the long subordinate clauses, so that the noun eventually played the role of subject instead of object. In a somewhat similar manner, it is likely that in sentence 21 the speaker started out to say something like "which we like" and changed in midstream to "which can make us happy". The case errors shown in sentences 16, 17, and 18 may indicate imperfect command of the accusative in a non-native language, whereas the errors of 19, 20, and 21 appear more like typical hesitation phenomena seen even among native speakers of any language.

- (16) ...eble mi trovos tricent eroj(n)...
(...possibly I will find three hundred items...)
- (17) ...pretigas, jes, centpaĝan provkajeron, kiu enhavos do parton(n)...
(...prepares, yes, a hundred-page trial booklet, which will contain therefore a part...)
- (18) ...ĝi nepre fariĝus iun tre subjektivan literaturhistorion...
(...it necessarily would become a very subjective literary history...)
- (19) Mi tamen konstatis ke ĝuste la poemon kiun vi citis en via artikolo pri tiu studo pri Hector Vermojten - ĝuste temis...
(I nevertheless realized that precisely the poem which you cited in your article about that study about Hector Vermojten - precisely had to do with...)
- (20) O jes, kaj iun parton el tiu enciklopedio, kiu estas treege bezonata, tiu estas ekzemple la historio de...
(Oh yes, and one part of that encyclopedia, which is greatly needed, that is for example the history of...)
- (21) Mi pensas ke tiu tamen estas fakto kiun povas nin ĝojigi.
(I think that that nevertheless is a fact which can make us happy.)

A partial analysis was made of one other conversation from the Portland conference to check in particular some of the results on constituent order. This conversation consisted of six-and-a-half minutes between the Pole Ada Fighiera-Sikorska and the Bulgarian Stojan Djoudjeff, followed by a conversation between Djoudjeff and the Briton Duncan Charters, of which eleven-and-a-half minutes were analyzed. Out of 84 main clauses involving transitive verbs, 80 (95%) had SVO order. The other four examples were these:

- (22) ...mi ankaŭ tion esperas 'I also hope that' (Fighiera-Sikorska)
- (23) ...ankaŭ tiun trajton de la kongreso mi rimarkis
'I also noticed that characteristic of the congress' (Charters)

(24) ...la verkado ilin kaptas 'Writing captivates them' (Djoudjeff)

(25) ...oni povas tion atingi 'One can achieve that' (Charters)

We see the same features noted in the Auld-de Smedt data. The SVO order is highly dominant, and three of the four non-SVO orders involve moving tion or the pronoun ilin. No errors in the use of the accusative were noted for these very skilled speakers, with the possible exception of a sentence by Fighiera-Sikorska: mi vizitis krome Tokio(n) 'In addition I visited Tokyo'. As mentioned earlier, there is some variation in the declining of proper nouns, although one would normally use the accusative case in this situation, because the city name has been completely Esperantized and ends in a typical -o.

4. The problem of the accusative

It is well known that the accusative is the biggest source of errors for beginning students of Esperanto, and there is some awareness that even skilled speakers occasionally make case errors. This seems to be rather independent of the person's native language and occurs even with speakers as experienced as de Smedt, who is a serious student of Esperanto literature. It would seem that for most speakers the fact that the accusative poses serious problems might be explained as follows. In speaking, the SVO order is so massively dominant (92% in the Auld-de Smedt data and 95% in the other conversation, with the bulk of the remainder quite special) that it is natural to drop the -n as redundant on the object, since order alone normally identifies the subject and object. Although I don't have firm data, I have the impression from my own speech and from casual observation of other speakers that -n is sometimes added to subjects and in prepositional phrases as a form of hypercorrection, out of the guilty knowledge that one is apt to forget -n on objects.

The Esperanto accusative has often been attacked as being excess baggage and inappropriate in a language intended to be easy to learn and use. Apologists have countered these attacks with various arguments. One claim is that the free order benefits native speakers of languages which don't have SVO order, making it possible for them to use the constituent order which they find most natural. However, there is no real evidence that this in fact occurs: although formal studies have not been done for spoken Esperanto, in my own conversational experience I have noted that SVO is very much dominant for Hungarian and Japanese speakers (whose native order is not SVO). Moreover, there are very few languages in the world which normally place object before subject, so it is natural for all speakers to take the second noun phrase as the object, even without an accusative marking. Sometimes contrived sentences are exhibited which show how the accusative can remove ambiguities, ignoring the fact that speakers can and do use other available constructions to avoid such problems. An example of this type of argument involves the pair of sentences Mi trovis la vinon bonan 'I found the good wine' and Mi trovis la vinon bona 'I found the wine to be good'. One can artificially construct many examples of this kind, but in practice speakers use other structures to disambiguate, including context.

Perhaps the most sophisticated defense is the one which points out that in communication between speakers from different cultural backgrounds,

extra precision and redundancy are needed to compensate for the lack of shared assumptions and backgrounds. But if further studies confirm what has been found here, all Esperanto speakers share a highly dominant SVO order and a common tendency not to use the accusative correctly, which weakens the argument. It can be agreed, however, that the accusative has great value in writing, at least optionally, because sentence structures can be much more complex than in speech. For example, active OVS sentences with complicated subjects in Esperanto often must be translated as passives into English, due to the rigid English constituent order: La libron verkis juna fizikisto kaj sperta kemiisto 'The book was written by a young physicist and an experienced chemist'.

It is probably fair to say that the spirited defense given for the clearly problem-ridden accusative really springs from social and political aspects of Esperanto language planning. Many historians of constructed languages have concluded that the 1905 social contract on the "untouchability" of the basic core of Esperanto was crucial in combining the necessary stability of the language with adequate capacity for evolution (Drezen 1931; Janton 1973; Golden 1977). Other constructed languages which lacked such a contract among the users tended to break up into dialects as reformers tinkered incessantly, seeking the holy grail of perfection, while the shelter of the principle of untouchability allowed the steady growth of a community of Esperanto speakers and a vital literature. A striking example is Ido, the 1907 offspring of Esperanto which was intended to remedy perceived failings of its parent, including the mandatory accusative. In Ido, the accusative ending was optional unless the object preceded the subject (Carlevaro 1978), a rule which can be observed to hold in practice for many people's spoken Esperanto. While this change was surely in the right direction on narrowly linguistic grounds, this and other changes opened up Pandora's box, leading to rapid instability as more and more of Ido was perceived to need "improvement". The leaders of the Ido movement soon found themselves having to impose artificially a period of no change, after having mocked the Esperanto "untouchability" as being a mere superstitious fetish.

It is with this historical background that justifications of the Esperanto accusative must be viewed. Speakers are naturally reluctant to discuss possible changes in the core of the language. However, the price paid in this case for stability is rather high. Insistence on "correct" use of the accusative makes learning the language more difficult. Many, perhaps most, speakers are unable to eliminate case errors even after years of experience. For speakers of moderate skill, failure to use the accusative "correctly" can lead to self-consciousness and to condescension from those more skilled. These are social effects which are undesirable in an auxiliary language intended for easy use by ordinary people.

There is a possible resolution of the dilemma of how to remove the problem without violating the important principle of untouchability. In 1913 the forerunner of the Academy of Esperanto accepted the "principle of necessity and sufficiency" (Cherpillod 1979) proposed by René de Saussure, brother of the famous linguist Ferdinand de Saussure. This principle states that good style dictates using only those affixes really needed to fully define a word, and none that are obviated by the surrounding context. Thus desegnaĵo 'thing which is drawn' and desegnado 'continued act of

drawing' can be and should be shortened to deseĝno whenever the context makes clear whether an object or an action is being described.

Perhaps the Esperanto-speaking community would be willing to admit openly that this principle is being applied by speakers to the accusative. When one says Mi vidas kato instead of Mi vidas katon 'I see a cat', the principle of necessity and sufficiency is enough to indicate that it is the cat which is seen, given that 1) SVO order is strikingly dominant; 2) the vast majority of non-SVO orders in speech involve rather special, stereotyped forms; and 3) regarding this as an "error" flies in the face of the fact that many skilled speakers do say this (and they say it precisely because there is no real ambiguity).

It is interesting that a principle of necessity and sufficiency can be seen to control the accusative in terms of semantics. Because books don't see, if I say Libro mi vidas or Libro vidas mi, there is no doubt that it is the book that is seen, despite coming first in the sentence. Richard Wood kindly pointed out to me that in the carefully edited and proofread "Der Esperantist", published in East Germany, there occurred the following "error" (Thomas 1980): "La posttagmeza programo je 16:30 h. estas aŭdebla...kaj la vespera programo je 22:30 h. ni povas aŭdi..." (The afternoon program at 16:30 is audible...and the evening program at 22:30 we can hear; should be vesperan programon). It seems likely that this "error" on the part of author, editor, and proofreader (all speakers of German, which has an accusative) reflects their natural application of the principle of sufficiency. Semantically, only "evening program" can be the object in this OSV sentence, and this is the probable cause of the missing accusative ending.

Wood has sent me a number of other examples of accusative errors observed in written Esperanto. Of particular interest are two OVS sentences in which the accusative ending is missing despite the inverted order. The first is from a book review, and the second from an announcement of a conference:

- (26) Estas nun instrue vidi, kio pensas profesia lingvisto...
It is now instructive to see what a professional
linguist thinks... (should be kion)
- (27) Tiu ĉi renkontiĝo organizas Esperanto-sekcio...
This meeting is organized by an Esperanto-section...
(should be tiun ĉi renkontiĝon)

Again, because "professional linguist" and "Esperanto-section" are semantically the only possible subjects, the accusative ending was omitted on the object despite the fact that the object actually precedes the subject.

David Gold (personal communication) has noted that even in writing a common error is to use the accusative in a nominative slot. This may be a kind of hyper-correction. I have noticed in letters I write and receive that both extra and missing accusative markers are common, and that typists often go back and pen in an -n or blot one out.

An argument against extending the principle of necessity and sufficiency is that if carried to extremes one might argue that all redundancy be omitted, including the use of the grammatical endings. However, it is an observational fact that Esperanto speakers do not omit grammatical endings, nor do they seem to have much trouble with adjective-noun number agreement (no agreement errors were noted in the Auld-de Smedt conversation). In these areas description matches prescription. It is mainly in the use of the accusative that practice diverges significantly from theory.

5. Conclusions

Before statistically analyzing an Esperanto conversation it was thought that native-language influences might show up not just in phonetics but in syntax or word-formation. Such influences were not identified. It was found that constituent order is almost exclusively SVO, that other orders involve the movement almost solely of very simple objects, and that errors in the use of the accusative may be about as common as non-SVO orders, even among very skilled speakers. Although no firm data are available, my conversational experience with Japanese and Hungarian speakers indicates that these results hold true for non-SVO native languages as well, so these effects are apparently independent of native language.

The difficulties of the accusative lead to undesirable discriminations between skilled and less-skilled speakers, no matter what their native language. It might be helpful if the Academy of Esperanto would acknowledge the fact that the accusative is observed to be optional. One way to do this would be through an extension of the principle of necessity and sufficiency. The reformist problems Ido and other constructed languages encountered are probably avoidable in modern Esperanto if one speaks only of extending the existing principle in a specific, narrow area. It may be that the community will recognize that its maturity and size permit it more safe leeway than was possible 75 years ago. On the other hand, de Saussure's principle was considered just a minor stylistic interpretation of Esperanto usage, and extending this principle to something as fundamental as the accusative would be considered a big leap by many speakers. It is possible that the perils of making a fundamental change in the core of the language might outweigh the pedagogical and social benefits of simplifying accusative usage de jure as well as de facto.

NOTES

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Appendix 1
Phoneme Frequencies

	Auld	de Smedt
a	11.5%	11.2%
b	1.0	.7
c	.8	1.0
ĉ	1.0	.8
d	2.7	3.2
e	10.9	11.9
f	.9	.9
g	1.2	.9
ĝ	.6	.5
h	.9	.6
ĥ	.00	.01
i	10.0	9.8
j	2.7	2.9
ĵ	.04	.09
k	4.4	4.6
l	5.2	5.1
m	3.5	3.0
n	7.6	7.2
o	8.2	7.4
p	3.0	2.6
r	5.3	5.8
s	7.0	6.7
ŝ	.25	.06
t	5.4	5.9
u	3.1	3.8
ŭ	.3	.6
v	2.2	2.3
z	.3	.3

Combined Frequencies for Both Speakers

e	11.4%	j	2.8%
a	11.3	v	2.3
i	9.9	g	1.0
o	7.8	f	0.9
n	7.4	c	0.9
s	6.8	ĉ	0.9
t	5.7	b	0.8
r	5.6	h	0.7
l	5.1	ĝ	0.5
k	4.5	ŭ	0.5
u	3.5	z	0.3
m	3.2	ŝ	0.15
d	3.0	ĵ	0.07
p	2.8	ĥ	0.005

Appendix 2
Two-phoneme Frequencies

	P	W	a	b	c	č	d	e	f	g	ġ	h	ħ	i	j	ĵ	k	l	m	n	o	p	r	s	š	t	u	ũ
P			4	0	0	13	4	5	1		1	0		1	5	0	40	5	12	5	2	3	0	12	1	4	1	
W			33	9	3	8	34	51	14	3	11	15		17	8	0	39	53	35	32	12	46	12	20	3	48	4	
a	9	60		4	2	1	6		4	3	1			0	39	1	6	21	13	30		4	23	64	13	1	13	
b		1	3					3						1	0			7			6		1	1			1	
c	1		1					8				0		11			1				3					0		
č	0	1	8					2						6							1						8	
d	2	8	9					27				0		13					0		17		2				6	
e	15	86	1	6	5	1	18	4	1	7		0		0	1		10	16	10	45	1	2	42	39		7		
f	0		11					5		0				3				1			4		1			0	0	
g			6				0	4				2		7				2		1	2		3				1	
ġ			1					1						8							2						4	
h			7					1						5				0			5						1	
ħ			0																									
i	7	88	23	3	3	1	4	9	1	7	2			1			8	6	5	22	23	1	7	28		11	25	
j	8	45	5					8						1						9	1					1	2	
ĵ			0																		1						0	
k	0	3	36		1			21						16				3			24		5	2		7	5	
l	1	17	52	0		0	4	16	1	1	0	0		30	0		2	1	1	1	11	1		0		3	6	
m		9	10	0				10	0					38				0			14	10					2	
n	17	49	10		5		9	29	1	6	0	1		25	0		7	1	0		7		0	11	0	21	11	
o	28	40	0	1	1		2	3	1	2				0	23		1	12	15	50		7	18	8		0		
p			7					16	0					5				12			17		21			1	1	
r	1	13	31	0	0	1	3	32	1	0	0	1	0	29			8	3	2	1	26	0	0	2	0	4	2	
s	28	73	7		5		0	23						8			2	0	0		5	6		0		36	4	
š			3											1				0									1	
t	0	1	39					31	0			0		37			0		0		22	0	17	1		0	13	
u	4	30	3	1	0	0	1	1	1	0	0			2	4		5	4	1	16	2	1	9	8	0	5		
ũ	1	10					1		0	1													1			1		
v			16					15						21			0				9		0				4	
z		1	1					3						2							2							

Number of diphones per 3000 phonemes in a 30-minute sample of 17120 phonemes. On the left is the first phoneme, across the top the second. For example, there were 18 instances of the sequence "ed" and 27 instances of the sequence "de" per 3000 phonemes. P stands for pause, W for word boundary. Blank indicates no occurrences, 0 indicates less than 0.5. sample contains a few proper names and foreign words.

Appendix 3
Grammatical Categories

	Auld		de Smedt	
adjective	6.8%	(11.5)	8.0%	(15.5)
noun	13.7	(24.9)	14.2	(23.5)
pronoun	12.0	(9.8)	10.3	(6.5)
correlative	7.5	(27.6)	7.6	(17.4)
adverb	6.3	(1.8)	6.6	(0.8)
past	2.9		3.6	
present	10.3		8.4	
future	0.7		0.7	
infinitive	1.9		2.7	
imperative	0.4		0.6	
conditional	0.4		0.8	
other	37.1		36.6	

The percentages in parentheses represent the fraction of each category that was in the accusative case. For example, of Auld's 1782 words, 122 or 6.8% of them were adjectives, and 11.5% of these 122 adjectives (14) were in the accusative case. The accusative case for adverbs indicates "direction towards".

Appendix 4
Compound Words

Auld

136 compound words out of 1782 total words = (7.6±0.7)%
(1782 words)/(15 min.) = 119 wpm

reAgis	kredAnto	falPuŝiĝo
verkIsto	siNTenon	pasIntFoje
iaSence	tolerEmaj	pretIgis
melodramEca	amikIĝas	tradukItaj
amEgas	tolerEmaj	neEble
ĝojIgas	treEge	NeKredEble
klarIgi	dekSepa	neKredEble
iomEte	jarCento	tradukIta
siNTenon	pliBonIgo	finIĝos
surdEcon	bonEco	deNove
parolAnte	diKredAnto	malGranda
publikIĝItaj	sentIgos	komprenEble
partEton	neKredAnto	multObligas
lingvAĵo	homArAno	pliParto
senEmocia	dirIte	dronIntaj
BaghyEcon	legAdo	DronIntaj
florEce	BudhAno	movAdo
mirEgis	homKredaj	literaturHistorio
aktorEca	finFine	KomprenEble
teatrEca	homAro	iomEte
deNove	deVoĵIĝis	verŜajne
tradukAnto	belEga	kunLaboras
poemAroj	rimFormo	reVerki
LulKanto	kiaManiere	duFoje
poemAroj	enTute	perfektEcon
FoliAro	enHavo	elDonas
deNove	bonEge	alDoni
sentimentalAĉo	deNove	laborRitmo
PomArbo	literaturHistorio	tutSimple
kvinDek	interRompi	proksimUme
plurFoje	fidInda	eksModIĝInta
forPelas	kunLaborAntojn	ĉiuOkaze
enuIga	KonsentIte	enTute
disVolvas	malNovajn	elDonas
perdiĝas	elSerĉis	mondMilito
farIĝas	enIras	poKajere
trenIta	movAdon	bindIgas
junUloj	iomEte	mallongDistanca
duDek	unuAVice	elDonos
reLegis	bonŜanca	deNove
reLegi	duAVice	tutSimple
gurdite	du-tri	naĉiLingvAnoj
recenzAnto	malGrandaĵ	enŜtopas
kvinDek	iomEte	suprAĵon
malBona	solvita	reVido
kiaManiere		

De Smedt

173 compound words out of 1948 total words = $(8.9 \pm 0.7)\%$
 (1948 words)/(15 min.) = 130 wpm

treEge	reVenas	finFine	reVen
legAdon	deNove	duCent	supozIgas
eksModaj	artikolEto	elDonIsto	korektIta
iomEte	diKredo	interTempe	ordIga
treEge	komprenEble	kvinDek	KomprenEble
kompArEbla	treEge	malNovRusa	neKompleta
malFacile	tradukInto	tutSimple	preferInde
treEge	tutSimple	Esperanto-libroj	reElDonu
romantikEco	finAjo	malGrandaj	malNovan
arfaikEco	literaturHistorio	librEgo	deLonge
malAperis	preferInde	kunIgita	havEbla
FoliAro	literaturHistorio	ŝlosilo	KomprenEble
kompilAjo	enMeti	tradukAjo	gisData
kritikIsto	sentIgas	oficEjo	reElDonu
ĉefVerko	junUloj	Esperanto-revuo	malNovan
treEge	junUloj	malLongan	elDonu
unikAjo	treEge	malLonga	KomprenEble
treEge	interesIgas	aperIgi	treEge
malPlaĉis	eblEcon	reSendo	Esperanto-movAdoj
hibridEco	elDonIsto	ankoraŭFoja	urĝEga
miksAjo	reElDonis	reSendo	Esperanto-movAdo
aliFlanke	reElDonis	starIgas	sinSekvo
treEge	reElDonita	verkItaj	malAkordIgoj
recenzAnto	elDonItaj	ĉeEstis	movAdo
daŭrIgi	GeFratoj	komitatKunVenon	disKonIgi
aperIgIntajn	reElDono	komitatKunVenon	eblEcon
fariĝus	reElDono	elDonIsto	tutSimple
literaturHistorion	ĝojIgi	farIgos	forLasis
treEge	daŭrIgi	multeKosta	forLasis
recenzIston	literaturHistorio	aperIgo	movAdon
verŝajne	komprenEble	interAlie	malĜusta
neKredAnto	kunLaborAnton	antaŭVidi	treEge
malFacile	kunLaborAnton	aperDaton	malFrue
pastro-poeto	komprenEble	AliFlanke	kunSidon
neKredAnto	tutSimple	ĝojIga	forIri
konAta	ekSci	sciIgo	komprenEble
ateIsto	reSpeguligas	pretIgas	treEge
malAntaŭ	kunLaborAnton	pretIgas	interParoli
verkAnto	iomEte	centPaĝan	treEge
verkOnto	komprenEble	provKa jeron	reVido
literaturHistorio	malOfte	enHavos	
aperIntajn	triCent	malHelpo	
treEge	triCent	elDoni	
interAlie	tradukAjo	elDonis	

Appendix 5
Inflected Words

Auld

fakte	interese	aspiroj	nome	same
favore	Aŭtuna	vero	bone	tutSimple
rilate	deNove	pliBonIgo	eble	proksimUme
angla	valora	diKredAnto	iomEte	ĉiuOkaze
rilatoj	absolute	veron	unuAVice	enTute
similas	ĝuste	kredo	duAVice	mia
iaSence	Sonĝe	inspiron	escepte	dua
melodramEca	plurFoje	kredo	relative	poKa jere
ekzemple	absolute	neKredAnto	verkoj	poste
kore	verko	nome	pravas	kompleteon
mia	ĝuste	kredoj	bone	relative
iomEte	tede	fidoj	fakte	malLongDista
mian	Esperanta	Infana	aktuale	mian
siNTenon	opinion	eksplicite	iomEte	deNove
interese	verko	diriTe	angla	bone
sincere	publike	temas	ĝuste	tutSimple
parolAnte	tute	analogia	pasIntFoje	nian
tradukoj	trompa	religia	verkoj	pravas
temas	ekzemple	sento	neEble	absolute
pravas	Esperanta	sento	neKredEble	propagandan
interese	Esperanta jn	absolute	neKredEble	reciproke
ekzemple	opinion	ideologia	absolute	stimule
anglan	simple	legAdo	kvante	reVido
angla	gurdIte	katolikaj	kvante	
senEmocia	absolute	sentoj	angla	
florEce	pravas	budhaj	deNove	
ĝuste	simple	sentoj	komprenEble	
Sanga	unua	homKredaj	verkoj	
anglan	recenzAnto	sentoj	forgeson	
absolute	opinion	finFine	kare	
aktorEca	Esperanta	aspirojn	rusa	
teatrEca	eble	koincido	gazEto	
melodrama	kiaManiere	koincido	nederlanda	
deNove	opinio	ĝuste	komprenEble	
temas	kredAnto	kiaManiere	iomEte	
tradukAnto	ofte	enTute	verŜajne	
Verkojn	siNTenon	nederlanda	domaĝe	
evidente	ĝuste	bonEge	eblon	
unua j	ekzemple	deNove	kulpas	
nome	treEge	ekzemple	angla	
dua	alte	bone	fine	
unua	ekzemple	kunLaborAntojn	tria	
Siberia	signife	konsentiTe	duFoje	
LulKanto	anglaj	fakte	celas	
vere	religiaj	inkluzive	verkon	
valora j	dekSepa	sciencaj	ekzemple	
poste	ĝuste	verkoj	poste	

de Smedt

treEge	papere	verko	fakte	verko
naciaj	treEge	analogan	malOfte	aliFlanke
ekzemple	tute	tutSimple	eble	malHelpo
nederlanda	fakte	ebblas	nederlanda	alfabeta
flandra	vere	ekzemple	finFine	komenco
legAdon	aliFlanke	ebblas	interTempe	poste
verkoj	treEge	ebblas	eble	komprenEble
fakte	nia	vere	ekzemple	bone
eksModaj	opiniojn	preferInde	nederlanda	preferInde
iomEte	opinion	tradukojn	malNovRusa	deLonge
liaj	unua	verkojn	jugoslava	komprenEble
verkoj	recenzAnto	verkoj	tute	gisData
treEge	literatura	ebblas	hazarde	mia
naciaj	unua	precipe	tutSimple	komprenEble
komenca	ĝuste	cetere	nacia	treEge
ĝuste	sufiĉe	cetere	kunIgIta	ekzemple
ekstrema	mian	treEge	bindo	naciaj
fakte	opinioj	vere	hazarde	urĝa
tute	kredo	vere	nederlanda	movAdo
ĝuste	treEge	niaj	fakte	nacia
nia	verŝajne	sufiĉe	vere	siNSekvo
nederlanda	fakte	multe	vere	bataloj
fakte	tute	Sanga	eble	kvereloj
fakte	neKredAnto	tradukoj	komenco	ĵaluzoj
malFacile	malFacile	unua	nederlanda	movAdo
nederlanda	nederlanda	vere	poste	tipe
verkon	eble	eble	mia	pravis
treEge	forto	fakte	unuan	sian
Esperantan	verkAnto	inkluzivi	fakte	opinion
tradukon	verkOnto	tradukojn	sendo	tutSimple
Esperanta	treEge	komprenEble	reSendo	oficiale
traduko	cetere	plene	ankoraŭfoje	movAdon
fakte	fakte	kunLaborAnton	reSendo	unue
troa	interAlie	kunLaborAnton	personaĵn	poste
senton	fakte	komprenEble	opiniojn	vero
verkoj	deNove	nederlanda	fakte	treEge
fakte	ĝuste	tradukoj	vere	necesas
verko	ĝuste	tradukoj	necesas	malFrue
bone	diKredo	tutSimple	cetere	kunSidon
Aŭtuna	komprenEble	tradukoj	eble	komprenEble
verko	cetere	valoraj	ĝuste	treEge
fakte	precipe	kunLaborAnton	dana	multon
ege	treEge	fakte	multEKosta	treEge
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treEge	tradukon	komprenEble	interAlie	
Sanga	literatura	tute	raporto	

VARIATION IN ESPERANTO*

Bruce Arne Sherwood

Questions are often raised about the mutual intelligibility of Esperanto spoken by people with different first languages, and about the likelihood of Esperanto splitting into mutually unintelligible dialects if it were used on a wide scale. An attempt is made to describe and explain the present situation, and speculations about the future are also made. Important factors to be taken into account are the nature of the Esperanto speech community; the ways in which vocabulary growth is controlled; pronunciation norms; and phonological and morphological aspects.

1. Introduction

Two related questions are often raised about varieties of Esperanto. One is whether the language is at present mutually intelligible between speakers of different first languages (e.g., can Japanese and American speakers understand each other), while the other asks whether Esperanto would fall into mutually unintelligible dialects if it were ever used on a vast scale (as everyone's second language). To a first approximation, the present situation is one of good intelligibility among all speakers, independent of first language, and to a large extent there has emerged an agreed-upon norm, despite the geographical dispersion of Esperanto speakers. I will attempt to explain how this has come about. I will also discuss factors likely to influence future evolution of the language. It will be shown that some assumptions which are valid and useful for studying first languages are not necessarily helpful in understanding a language which is spoken mainly as an auxiliary second language.

2. Who speaks Esperanto?

Judging from the 36,000 dues-paying members of the World Esperanto Association and its national affiliates (Esperanto 1982), recognizing that many speakers do not belong to one of these organizations, and considering the currency exchange difficulties of the large numbers of Esperantists in the communist world, there must be at least several hundred thousand speakers of Esperanto as a second language. Some standard reference books give numbers as high as several million, but these estimates may be quite arbitrary. There is a problem in obtaining accurate figures, in that the low densities of speakers and their mainly second-language use of Esperanto make it unlikely that a normal language census would identify Esperanto speakers. The highest density of speakers (as a fraction of the total population) is found in East European countries, but West Europe

contributes the largest fraction of movement leadership. There are significant Esperanto activities in Asia, in Japan, China, South Korea, and Vietnam. Numerically small but active groups of Esperanto speakers are found in the Americas, particularly in Brazil, Canada, and the United States. There are few speakers in Africa or the Middle East, except for Iran and Israel.

While most people learn Esperanto as a second language, there also exist native speakers of the language, often as the result of marriages between young people of differing nationalities who meet through Esperanto activities and who continue to speak the common language at home. Of course the child eventually learns the local national language (as does whichever spouse did not originally know it), thus becoming bilingual, but it is not uncommon for Esperanto to remain the language of the home. There are also cases of one parent deliberately addressing the child only in Esperanto while the other parent addresses the child in another language, in a conscious decision to make the child bilingual (Fischer 1981). A survey conducted by a newsletter for parents of native Esperanto speakers located 150 families where Esperanto was used extensively (Nemere 1968). Given the difficulties of carrying out such a survey, one might guess that there are between 1000 and 2000 native speakers. Additional evidence for such numbers comes from the observation that a few dozen international marriages among Esperanto speakers are reported in Esperanto periodicals each year, and this rate of family formation is about right to produce the estimated number of native speakers. Richard Wood (forthcoming) found in a poll at an Esperanto conference that one to two percent of the conference participants had learned Esperanto as their first language, which is in rough agreement with the estimate of one to two thousand native speakers among a total of a few hundred thousand speakers in all.

3. The Esperanto speech community

The most important reason for mutual intelligibility among the varieties of Esperanto is that the speakers do form a genuine speech community, as is well described by Wood (1979, forthcoming). This community is unusual in being geographically dispersed and culturally diverse, yet sharing certain distinctive cultural values and a common literature. Why people learn Esperanto is a complex question, but since most learn it for purposes of international rather than local communication, the instrumental aspects of their use of the language make them strive for an international norm. This is reinforced by the integrative ties of a shared aspiration for a solution to the language problem.

Esperanto was born as a literary language in modern, literate times, which may have prevented drastic changes in syntax, morphology, and semantics from occurring in different countries, given the world-wide distribution of Esperanto books and periodicals. Yet there has been significant evolution, especially along the lines of increasingly exploiting certain latent autonomous properties of the language instead of merely imitating forms borrowed from European languages. For example, the agglutinative properties of Esperanto have been utilized more and more in ways that are quite un-European in nature. But the development of Esperanto in China and Japan has not in general been different from that in

Hungary and France (more about this in a moment). The language has evolved within an international community which has been in constant contact, both written (books, periodicals, letters) and spoken (tourism, conferences, shortwave radio broadcasts). The breakup into dialects of languages which evolved before literacy and/or before global communications has given rise to a set of assumptions about language evolution that may not necessarily be useful in understanding the different nature of Esperanto evolution and the properties of a dispersed community of second-language speakers. As Wood points out, there are some striking parallels to the early stages of the development of Modern Hebrew, but the territorial nature of the growth of Hebrew is quite different from the non-territorial development of Esperanto.

A related point made to me by David Jordan (personal communication) is that contacts with others through Esperanto are, on a day-to-day basis, typically written (as is the case with other non-native languages we use in international communications) but from a wide diversity of cultures (unlike the situation with other second languages: e.g., communications in Italian or Russian typically involve Italy or the Soviet Union). This emphasis on the written word, with the internationalist character of the contacts, keeps Esperanto speakers aware of the needs for international intelligibility. This continually reinforces the understanding of the need for an international norm.

Nevertheless, the careful study by Golden (1980, 1981) shows that within the rich environment of the Hungarian Esperanto movement there are significant identifiable Hungarianisms. Golden expresses the belief that much more care should go into teaching materials used in Hungary, to help learners avoid nationally-based errors. His work yields a basic inventory of major interference errors.

4. Vocabulary

For almost the entire ninety-year lifetime of the language, there has been a public debate, often acrimonious, about control of growth of the lexicon. Roughly speaking, the disagreements result from a desire on the one hand to keep the number of roots small to benefit the new learners and on the other a need felt by writers, especially poets, to enrich the vocabulary for literary purposes. While the debate has typically been conducted along the dimension utilitarian/literary, the arguments are often reminiscent of the question of purism in many national languages, which in Esperanto usually takes the form of contrasting "homey" compounds created from the internal, autonomous resources of the language, such as samtempa 'same-time', with Latin loan words such as simultana 'simultaneous'. The social dimension of the debate has often pitted the needs of the linguistically unsophisticated European worker against the capabilities of the Latin-trained European elite polyglot. Especially within the European Esperanto movement there has been a tradition of working-class involvement, and Esperanto publicity has often emphasized that the needs of workers for international communications require an easily learnable auxiliary language.

For Europeans, a compromise is possible by recognizing different styles in the language. However, it has sometimes been pointed out that an

abundance of Latin loan-words causes special problems for non-European users of the language. The point has been made dramatically by Claude Piron (1977) in his essay provocatively titled "La okcidenta dialekto" ("The occidental dialect"). Piron, a Swiss psychologist who has translated Chinese for the World Health Organization, contrasts an Esperanto passage swarming with Chinese loan-words with the same passage using an abundance of Latin loan-words, together with a rewritten passage in what he refers to as "global" Esperanto, in order to drive home two points: 1) it is scandalous that some Esperantists use a Latinate lexicon which is incomprehensible to non-Europeans (and to Europeans not in a narrow elite), and 2) with a real feeling for the word-building capabilities latent in the language, it is possible to write and speak richly expressive Esperanto without having to resort to Latinisms. Piron points out the similarities of a "global" style of Esperanto to the ways in which rich metaphors are created through similar techniques in Chinese. Chin-Chuan Cheng (1982) has demonstrated a tendency for the monthly *El Popola Ĉinio*, published in Beijing, to use compounds which are calques from Chinese. It is perhaps significant that I had not perceived these forms as unusual, not knowing the parent Chinese forms (and also being personally predisposed to use and approve of the "global" style urged by Piron).

While the issues Piron raises are important, his observations do not really justify the identification of separate European and Asian dialects at present. It is noteworthy that these issues have typically been raised not by Asians themselves but by sensitive Europeans. Part of the reason for this may lie in the fact that almost all Japanese study English before they study Esperanto, and this may be the case with some Chinese Esperantists, too, with the result that their use of Esperanto may be colored by English (and the Latin vocabulary of English). A careful study should be made of the styles and lexicons of Esperanto literature from various countries to see what the present situation really is, but it may well be that Piron's exhortations should be directed at all speakers rather than exclusively at West Europeans. In any case, the continued strength of the Esperanto movement in Asia is likely to insure that the needs of non-European speakers will not be neglected, and that Asians will contribute to the evolution of a global style.

Piron's essay has sparked consciousness-raising activities aimed at further internationalizing the language. This thrust is prompted not only by internal needs within the Esperanto community but also by the requirements of external publicity. One of the few truly well-founded criticisms of Esperanto is that it has a European rather than a global base, at least in the lexicon. Rather than emphasizing the international character of the European lexicon (given the spread of English and other European languages), Esperantists have typically responded to this criticism by trying to show that despite the European bias in the lexicon other properties of the language (agglutination in particular) make Esperanto not too European and therefore suitable for international communication. A style of Esperanto more like Chinese contributes to these interests.

The standard mono-lingual Esperanto dictionary (Waringhien 1970) has played a major role in the control of the lexicon, as did its predecessors (Grosjean-Maupin, Esselin, Grenkamp-Kornfeld, and Waringhien 1934 and

1954). As is the case with many emergent national languages, Esperanto books and periodicals often gloss new or lesser-known words. (Often there are also explanations of national events or customs not likely to be widely known.) It is noteworthy that usually only those roots not found in the standard dictionary are glossed, indicating some consensus that the dictionary defines acceptable usage. Occasionally, however, one sees in these glosses explicit exception taken to the dictionary forms, which is an indication of some fluidity. There is an Academy of Esperanto, but it has historically played a very minor role in the development of the language. Even in lexical matters the Academy has limited itself to occasional listings of words which have been around for enough decades to seem "official". Major growth in the lexicon has occurred through decentralized individual suggestions and use.

5. Phonetic aspects

As might be expected, national accents are common among Esperanto speakers. In my experience the resulting problems of intelligibility are rarely as severe as the difficulties between American English and, say, some varieties of New Zealand English, and the problems are much less severe than the problem of understanding Japanese English. These are moreover individual rather than group problems, in the sense that most speakers achieve an adequate pronunciation, no matter what their first language, and failures can plausibly be blamed on the fact that most Esperanto speakers have not had formal school courses in the language, being either self-taught or having attended informal classes in a local club.

The major credit for general success lies in the sound system of Esperanto. There are only five vowels, a fairly easy set of consonants (but more on this later), not too many difficult consonant clusters, syllable-timed rhythm (without vowel reduction), regular penultimate stress, and most words end in vowels, which probably helps hearers segment sentences into words. About 70% of the words in normal text end in a vowel or a diphthong, with another 20% adding an additional -n or -s. The remaining 10% of the words end in a vowel plus other consonant. There are no word-final consonant clusters except in the word post 'after'. Stress not only is regular but seems not to play a very critical role.

Intelligibility for such a sound system is more resistant to destruction by national accents than is, say, English as spoken by foreigners. For example, a slight error in vowel height in English can change "beat" to "bit", whereas such an error in Esperanto must be much larger before timo 'fear' is confused with temo 'theme'. Similarly, incorrect stress in English seriously affects intelligibility, due to the effects on vowel quality and rhythm.

In terms of normal linguistic description, it may seem strange to make value judgements about one language having a "better" sound system than another. Such a judgement is of course invalid for first languages, where the total linguistic system determines communication, not just the phonetics. But for a language intended for second-language use, it is important to have a simple sound system, since the purely acoustic part of the signal must carry a larger burden (due to cultural differences between

the speakers) and because it is essential that adults be able to learn the sound system quickly and easily.

It might be said that Esperanto has more consonants, and hence more subtle distinctions among these consonants, than one would like in a language intended for use by speakers of many different first languages. I had occasion to observe this in an unusual way in a new linguistics course (Sherwood and Cheng, 1980). In an experimental test of new computer-based teaching techniques (J. Sherwood 1981, B. Sherwood 1981, 1982a, Sherwood and Sherwood 1982), Esperanto speech synthesis (Sherwood 1978) was used for some audio stimuli. American students had difficulty making certain kinds of consonant distinctions due to imperfect synthesis, at least in the case of isolated words. The problems can be overcome with suitable teaching (and the extreme simplicity of other parts of the language leaves plenty of class time for working on consonants). But the voiced/unvoiced distinctions are difficult for the Chinese, the l-r distinction is difficult for the Japanese, the initial ts sound is resisted by Americans, etc. There are also some consonant clusters which are difficult for many speakers.

It may be impossible to get by with significantly fewer consonants in a language which borrows new internationalized words from many sources, context will usually make up for problems, and the system in any case is simpler than many national languages, but one could still wish that there were fewer consonants. In Novial, perhaps the only language project designed by a modern professional linguist, Jespersen (1928) emphasized the usefulness of reducing contrasts among consonants, and he included among the fricatives only /f/, /v/, and /s/, with no affricates. On the other hand, he found it necessary to include both voiced and voiceless stops, and both /l/ and /r/, as a result of incorporating a European-based lexicon. Papers by Sapir, Bloomfield, Boas, Gerig, and Krapp (1925), and by Troubetzkoy (1939) both advocated further reduction in the consonant repertoire, eliminating all voicing contrasts and the l-r contrast (Sapir et. al. also proposed a three-vowel rather than a five-vowel system, and Troubetzkoy eliminated /v/). Similar suggestions have been made by White (1972). But these studies were not subjected to the crucial test Jespersen faced in actually constructing a language embodying these criteria. Moreover, Chin-Wu Kim (personal communication) has pointed out that their calculations of the number of possible polysyllabic words composed of CV syllables were simplistic: no language uses forms such as "tototo", and closely related forms such as kamata, katama, makata, mataka, etc., would severely strain the memory. For these reasons the number of available words was very much overestimated.

A reformer might like to simplify the overly-rich consonant system of Esperanto. In this, as in other areas of "imperfection", such attempts have historically been blocked by a special social contract among Esperanto speakers not to change the basic structure of the language. This "untouchability" of the core was established at the first international Esperanto conference in 1905, to give the language the stability many other projects involving constructed languages never achieved, and it is thought to have been critically important in permitting the emergence of a community of speakers and of a significant literature (Drezen 1931; Janton 1973; Golden 1977). This did not prevent further evolution of the

language, because the core contained enough unexploited potentialities to accommodate new structures, but it did have the effect of drawing the boundaries of the Esperanto community in such a way as to exclude would-be reformers and their "deviant" creations.

Corresponding to "untouchability", there is a myth in the Esperanto movement, originally articulated by Zamenhof, the creator of Esperanto, that if a truly representative international organization should decide that Esperanto would be used among the nations, that organization would be entitled to empower a panel of experts to make a one-time reform of the language. Given recent experience with national language planning activities, belief in such a procedure seems naive. Reform would have to be carried out over a long period of time, in small steps rather than all at once, if at all, unless the changes were completely trivial. This would be necessary both because of the question of authority (how is it decided that a particular organization is entitled to authorize changes?) and because all changes, even seemingly small ones, can have complex ramifications throughout the system of the language.

Is there such a thing as "good" Esperanto pronunciation? John Wells (1979) has given a convincing argument that there has evolved a communal consensus on this -- that there is a norm for "good" pronunciation. He points out that one often hears Esperanto speakers say "She/he has a good/bad pronunciation", and he suggests that the basis for such statements may be found in several related criteria: practical, linguistic, geographical, and sociological. The practical requirement of intelligibility between speakers of different first languages is paramount. Good pronunciation also reflects the phonological character of Esperanto, distinguishing among all the phonemes, minimizing allophony, and conserving the strict relation between pronunciation and orthography (for example, a tendency for Spanish or Japanese speakers to fail to distinguish between /b/ and /v/ not only would cause practical problems of communication but also goes against the linguistic structure of Esperanto). Good pronunciation is geographically neutral, not manifesting regional or national peculiarities and making it difficult to identify the speaker's nationality (for example, French speakers should fight against a tendency to stress final rather than penultimate syllables). This does not imply that mild national accents are not tolerated or even enjoyed, but it appears that speakers do recognize and prize an international or non-national pronunciation style. The sociological criterion reflects the fact that, due to the development of a community of speakers, certain communal attitudes have emerged, including attitudes toward certain kinds of pronunciation, which may be the only way to explain a general recognition that a tapped or trilled /r/ is preferred to other varieties. Wells summarizes by pointing out that while these norms are not absolutely uniform and certainly not observed by all speakers, it is an important sociolinguistic fact that norms for pronunciation do exist. He also points out that it is particularly easy for a Serbo-Croatian speaker to attain the norm, because of the coincidental similarity of the sound system to that of Esperanto, but that it is possible for others to approach the norm, with good teaching and effort.

This point of view is further illuminated by historical aspects of Esperanto pronunciation. Kalocsay (1931) stated that Ludwig Zamenhof, the

creator of Esperanto, did not lengthen stressed vowels, while most speakers did and do. The only existing recording of Zamenhof was made in Barcelona in 1909. The poor quality of the recording makes analysis difficult. However, Richard Wood and I listened to this recording together, and we both feel that Zamenhof's pronunciation is just like good present-day pronunciation, without much allophonic variation in vowel quality, and with lengthening of stressed vowels (Wood 1980). Wood's well-known expertise in shortwave listening qualifies him to analyze this noisy recording! In text-to-speech synthesis (Sherwood 1978, 1981, 1982a, Sherwood and Sherwood 1982) I find experimentally that making stressed vowels 50% longer than unstressed vowels yields natural-sounding Esperanto rhythm.

Some older treatments of Esperanto (McQuown, 1936; Kalocsay and Waringhien, reprinted 1980) spoke of "rules" that one should follow in producing "good" allophonic variation (these had to do in particular with the status of vowels in open and closed syllables). But now the norm which has emerged characterizes the vowel system as requiring little allophonic variation among the five vowels, as in Greek or Japanese. As Wells puts it, one should be tolerant of allophones, but one certainly should not require specific variation, since any particular rule will be unnatural for many speakers. The simplest rule, and the one which is most universal, is to not vary, and this is the standard which has in fact emerged.

Another illuminating anecdote mentioned by Wood (forthcoming) is that when planning the 1907 international Esperanto congress in Cambridge, British Esperantists argued over whether they should be speaking Esperanto with English pronunciation, some feeling that this was the only proper way to pronounce the language. In the long run a different philosophy won out, that Esperanto should be spoken in an international form appropriate to the nature of the language. The fact that such a question could even come up is astounding for speakers now, when it is assumed that an international norm is what everyone should aim at (although with allowance for national accents as long as intelligibility is maintained).

Wood (forthcoming) reports on the speech of a handful of native speakers he has known. He found a range of accents, presumably derived from the national accents of the non-native parents or of the child's playmates. It would be fruitful to compare the variation among Esperanto native speakers with that found among native speakers of modern Hebrew during its early development. David Gold (personal communication) reports his observations of native Hebrew speakers of various ages, all of Yiddish background. He says that the pronunciation of those born before about 1930 is so strongly influenced by the Yiddish linguistic background of parents or grandparents that a naive observer might not take these people to be native speakers of Hebrew. Those born after 1930 but before about 1955 clearly betray their Yiddish backgrounds but may pass for natives when judged by naive observers. Gold summarizes these observations by saying that just as in Esperanto, an indigenous norm is emerging. It is now possible to speak Hebrew without revealing one's linguistic, communal, geographical, or other background. This possibility was absent in early Modern Hebrew.

6. Phonology and morphology

Another factor contributing to a unified pronunciation norm is the drastic simplicity of the phonology and morphology. Esperanto phonology is rather rudimentary. The underlying phonetic representations of the morphemes in the lexicon map directly without complex phonological derivations into the surface phonetic forms (and graphemes too, for that matter, since written Esperanto is practically a transcription of the spoken form, or, given the powerful influence of the written language among literate, dispersed, second-language speakers, perhaps it is accurate to say that the spoken form is a realization of the written form). It is true that many speakers follow some natural assimilation rules (e.g., with nasals), but these phenomena are marginal in the overall scheme of things. Within a morpheme many natural rules shared by many languages are already accounted for in the lexical forms, which come from national languages. Juncture is often heard in agglutinative compounds to avoid assimilation (and to mark the presence of a morpheme boundary). In many languages, assimilation across word or morpheme boundaries does not occur in formal speaking styles, and as a mainly second language Esperanto is usually spoken in a relatively formal style, though it is said that Esperanto youth get-togethers have given rise to informal and rather special kinds of speech.

The morphology is also extremely simple. Almost any morpheme can take a "grammatical ending" to form a noun, adjective, adverb, verb, or participle: helpo 'help' (noun); helpa 'helpful'; helpo 'helpfully'; help/is/as/os/us/u/i -- past, present, future, conditional, imperative, infinitive verbs; past, present, and future passive and active participle endings are it/at/ot and int/ant/ont -- helpita helpanto 'a helped helper'. Adjectives and nouns agree in number (plural -j) and case (accusative -n): helpaj(n) helpoj(n) 'helpful helps'. Terms of endearment are formed by deforming the root and adding -ĉjo (masculine) or -njo (feminine): Petro-Peĉjo, Maria-Manjo, paĉjo 'dad', panjo 'mom'. Except for -io in country names (itala 'Italian', italio 'Italy') and some suffixes used in technical vocabulary, especially chemistry, these grammatical endings and suffixes are the only bound morphemes in the language.

To be more precise, morphemes divide into two classes: content morphemes which must have a "grammatical ending" (such as help-), and function morphemes which may take such endings but need not (prepositions, numerals, some "primitive" adverbs, etc.: tri 'three', tria 'third', trie 'thirdly'). Since the content morphemes need only a "grammatical ending", it is simplest to consider them as free morphemes, unlike the small number of truly bound morphemes listed above. All morphemes are strictly invariant in form except in endearment terms. About the only thing remaining for this vestigial morphology to do is to specify the allowed segmental sequences within syllables, although there also appear to be some phonotactic restrictions on the allowable forms of compound words: both banoĉambro and banĉambro 'bathroom' are heard, but partopreni 'to take part' is never partpreni. It should be mentioned that the highly productive short Esperanto morphemes traditionally called "affixes" are in fact themselves free morphemes, too: kato 'cat', katido 'kitten', hundo 'dog', hundido 'puppy', ido 'offspring'.

As a consequence of the invariance of its morphemes, Esperanto is rigorously agglutinative in its word-building. When various universal measures are applied (morphemes per word, etc.), Esperanto scores closest to languages like Turkish (Brozović 1976). Yet its agglutination goes beyond that of Turkish, since the Esperanto "affixes" are actually free morphemes (nor is there phonetic variation of affixes due to vowel harmony as there is in Turkish). Since there are hardly any bound morphemes, some aspects of the language are reminiscent of Chinese (although unlike Chinese, Esperanto morphemes are often polysyllabic). It seems to me that the characteristically productive agglutination of morphemes in Esperanto contributes to the lack of derivational rules in the rudimentary phonology, since almost any sounds may stand next to any other sounds as a result of agglutination, and about the only fully universal rules (of assimilation, etc.) valid for the speakers of many languages are simply to butt the sounds up against each other with little or no allophonic variation (one might say the phonology is "agglutinative"). This tendency is yet further reinforced by the power of the written language in a modern literate world to impose spelling pronunciations. On the power of the printed word in literate societies, see Levitt (1978) and Bentur (1978). The situations described by these authors are generalized in the case of Esperanto as a result of the minimal phonological and morphological rules, of the strictly phonetic character of the written form, and of the mainly second-language and written use of Esperanto.

7. Possible futures

What if Esperanto were used everywhere as the normal means of communication between people of different first languages? Here the reader must either suspend disbelief in the development of this kind of bilingualism, for the sake of following the argument, or reflect carefully on such situations as the following. The European Community is committed by treaty to absolutely equal treatment of all its national languages. It has just added Greek, making a total of seven official languages, and it will soon add Spanish and Portuguese, with the likelihood of adding Turkish around 1990. The competing goals of equity and efficiency may drive the Community to adopt a politically neutral second language.

It is often claimed that under widespread use Esperanto would break up into mutually incomprehensible dialects. This may be an invalid conclusion, since it is based on the way languages developed before there existed rich modes of global communication. A language breaks up into dialects when there is isolation, and under present conditions of mass literacy, global electronic communication, and mass global travel, isolation is increasingly uncommon. Moreover, if Esperanto were learned in school and used mainly for inter-national and inter-cultural rather than local communications, its patterns of usage would tend to block the normal processes of dialect differentiation. The specific properties of Esperanto which have contributed to unity at present (five-vowel system, phonetic orthography, etc.) would reinforce these tendencies.

A closely related question is what kind of evolution of the (unified) language would be likely. Given the difficulties with the consonants, one might predict a neutralization of some distinctions which might nevertheless remain in the written language (e.g., posta/poŝta

'later'/'postal'). The popular authority of writing would tend to combat this otherwise natural tendency, although Gold (personal communication) points out that observers in many languages have noted that the average person tends to misuse or omit diacritics, so that the written distinction might be endangered, too.

There might be changes in certain morphemes whose phonetic structure differs from that permitted in many languages, such as gvido (which might change to gvido) and in the morphemes beginning with eks- and the unnatural ekz-, both of which collide with the productive prefixes eks- 'ex-' and ek- 'start', though these prefixes typically are followed by junctures not present in the morphemes. It might be that spelling pronunciations would not shield these from change. Given the many errors speakers exhibit in the accusative marking of direct objects (Sherwood 1982b), and the pronounced tendency in the spoken language to use solely SVO order in main clauses, it is probable that the accusative would become optional de jure as well as de facto in spoken and perhaps written SVO sentences.

Because standard Esperantist publicity consistently claims that Esperanto is intended solely as a second, not a first language, to solve problems of international communication and to shelter the national and regional languages from the linguistic imperialism of the big languages, the existence of native speakers is something of an embarrassment for some Esperantists. The eminent Hungarian linguist and Esperantist Géza Bárczi (1966) publicly condemned the "fanaticism" of parents who bring up their children speaking Esperanto. He stated flatly that such behavior is not acceptable. This view misses the point that as soon as people began communicating in Esperanto, some of these people married each other, and it was natural for them to continue speaking Esperanto. It was impossible to avoid the emergence of native speakers. On the other hand, many linguists place great weight on the existence of native speakers, without whom Esperanto would not be a "real" language, an attitude based on assumptions about the role of first languages which are not necessarily relevant for an auxiliary language. This attitude does however have validity to the extent that a lack of native speakers of Esperanto would be strong evidence against the claim that communication occurs and that a community exists, since these factors have indeed led inevitably to the birth of children who learn Esperanto as their first language.

In these contexts the question naturally arises whether widespread use of Esperanto would ultimately obliterate all other languages, leading to a monolingual world. This is a tabu subject within the Esperanto movement, given the second-language orientation of Esperanto publicity. The opposing tendencies would seem to be on the one hand the fact that minority languages and dialects have so far proven to be much more resilient to the pressures of national languages than had been expected, on the other the fact that mass culture tends toward standardization. It is sobering to hear that a television program is not viable if it appeals "only" to a few million people. Given such orientations and economics, it seems likely that television and movie producers, novelists, and publishers would tend to use a second language known all over the world rather than any first language known "only" to a few hundred million people. Also, a minority language may resist successfully when the majority language belongs to a different, possibly disliked social group, whereas a neutral second

language belonging to no one would not present the same barriers to acceptance (this conjecture was pointed out to me by Mikuláš Nevan, the father of a native Esperanto speaker). But David Jordan points out that in the process of coming into widespread use, especially if assisted by political forces, Esperanto would likely acquire resistance and enemies by association with those groups favoring its use, thus raising barriers to acceptance. In the thirties, Hitler crushed the German Esperanto movement for being "communist", and Stalin simultaneously obliterated the Soviet Esperanto movement for being "cosmopolitan", which gives some perspective on the relevant political considerations. (It may be more accurate to say that Hitler and Stalin shared the same rationale: both movements were "internationalist" and may also have been perceived as "Jewish".)

While there are obviously advantages to a monolingual world, a multilingual world also offers important benefits. The mutual unintelligibility of languages provides a useful "customs barrier" to protect national and ethnic experimentation in diversity. Could these customs barriers still function if everyone learned the same auxiliary language? Yar Slavutych of the University of Alberta (personal communication) reports that in non-Russian areas of the Soviet Union and in Eastern Europe it already happens occasionally that a university professor will ask the class whether everyone speaks the local language and, if there is even one Russian student who does not, the professor may lecture in Russian to be accommodating, on the basis that all the other students are presumed to know Russian as a second language. If it could be assumed that everyone knew Esperanto well, any gathering of people of mixed native languages would likely use Esperanto out of a sense of fair play.

The existence of a common second language would in itself greatly promote the kinds of international exchanges which would produce more and more linguistically mixed gatherings, in all sorts of settings (university, business, government, tourism, etc.). No matter how strong a theoretical commitment to maintenance of the native language and to the reservation of Esperanto for inter-language situations, one might find oneself speaking Esperanto many times every day even in one's own home town. It might require great linguistic sophistication on the part of the general populace to recognize both the cultural benefits of preserving the native language and the clear and present danger of its loss. One possibility is that those national tongues which are high literary languages not generally spoken in family life might be displaced (e.g., German and Italian for at least some speakers), while the local ethnic languages would be encouraged. There could be a stable diglossia involving the language of the home (often not a national language) and the auxiliary language.

It is important not to misconstrue the nature of the danger. In the absence of the kind of language planning on an international scale which could lead to the wide-spread use of Esperanto, the world may drift in its urgent need for better international communication into an unplanned solution. In particular, English might continue to spread and eventually become the universally-known auxiliary language, with the same attendant dangers in the long run, but with great inequity in the short run, due to the fact that it is many times more difficult to learn than Esperanto and because it gives enormous advantages to its native speakers. But some scholars believe that English has passed its peak (Starr 1978), and the

world may simply be headed for chaotic multi-lingualism and a different set of difficulties and dangers.

NOTES

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HANS HENRICH HOCK <i>The Sanskrit quotative: a historical and comparative study</i>	39
YAMUNA KACHRU <i>Syntactic variation and language change: Eastern and Western Hindi</i>	87
RAHISHWARI PANDHARIPANDI <i>Counteracting forces in language change: convergence vs. maintenance</i>	97
ELIZABETH PEARCE <i>Infinitival complements in Old French and diachronic change</i>	117
WILLIAM D. WALLAGE <i>The evolution of ergative syntax in Nepali</i> ..	147

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TABLE OF CONTENTS

PREFACE.	i
Hans Henrich Hock: Clitic Verbs in PIE or Discourse-based Verb Fronting? Sanskrit <u>sá hovāca gārgyah</u> and Congeners in Avestan and Homeric Greek	1
Hans Henrich Hock: The Sanskrit Quotative: A Historical and Comparative Study	39
Yamuna Kachru: Syntactic Variation and Language Change: Eastern and Western Hindi	87
Rajeshwari Pandharipande: Counteracting Forces in Language Change: Convergence vs. Maintenance	97
Elizabeth Pearce: Infinitival Complements in Old French and Diachronic Change.	117
William D. Wallace: The Evolution of Ergative Syntax in Nepali. . . .	147

PREFACE

The stepchild of historical linguistics traditionally has been diachronic syntax. For other areas of language change (phonology, morphology, language contact, etc.), historical linguistics has been able to draw on an impressive number and variety of case studies which have accumulated over the last two centuries, especially after the neogrammarian "revolution". While the neogrammarians and their early followers did devote some of their enormous energy also to diachronic syntax (cf. e.g. Delbrück 1893-1900, Fourquet 1938, Richter 1903), the number of published studies and their depth (which generally goes no farther than word order and morphosyntax) is far less impressive. And mid-century structuralism ushered in a virtual stand-still in diachronic syntax.

It is only with the 1965 publications of Klima and Traugott that interest in diachronic syntax has been rekindled, as is shown by the appearance of volumes like Li 1975 and 1977, Lightfoot 1979, and Steever et al. 1976. At the same time, however, the "gap" in empirical understanding of diachronic syntax which has resulted from the relative dearth of earlier relevant case studies still persists. In part this is no doubt attributable to the fact that the empirical gap is too large to be filled in one generation. In part, however, it also results from an understandable impatience, a desire to "jump" the gap, so as to work for instance with language families whose earlier history is not well known or to formulate theories of syntactic change which in terms of generality (and ingenuity) can compete with those proposed for phonological etc. change. As a result, much of current diachronic syntactic work does not provide the indepth case studies which are so urgently required. (Thus, out of 14 contributions to Li 1977, only four give case studies from languages or language families with well-attested histories.)

The present volume is intended as a modest contribution toward bridging the noted empirical gap by providing six case studies of syntactic change, all from Indo-European languages, i.e. from members of a language family whose history is relatively well attested. In scope, they extend from traditional historical/comparative studies to investigations of syntactic change in convergence areas. In subject matter, they range from word order phenomena to questions of ergative vs. non-ergative syntax. They reflect current work in the University of Illinois Department of Linguistics.

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CLITIC VERBS IN PIE OR DISCOURSE-BASED VERB FRONTING?
 SANSKRIT sá hovāca gārgyaḥ AND CONGENERS IN AVESTAN AND HOMERIC GREEK¹

Hans Henrich Hock

In 1892, Wackernagel proposed the hypothesis that PIE main-clause verbs were unaccented, therefore clitic, and thus moved to clause-second position. This view has been accepted by a number of linguists and has been used by Friedrich (1975, 1976, 1977) as an argument against the reconstruction of PIE as having SOV order. The most crucial evidence for Wackernagel's hypothesis consists in the Vedic-Prose formula of the type sáp ha uvāca gārgyaḥ '(then) Gārgya said', with unaccented uvāca 'spoke' occurring after the initial, accented sáp and before the accented words of the rest of the sentence.

This paper shows that a different analysis of this construction is preferable, namely that uvāca has been fronted and that its specific position results from a conflict between the fronting of deictic sáp and of "cataphoric" uvāca. Evidence from Avestan and Homeric Greek shows this to be an old phenomenon, probably inherited from PIE. The conclusion is that Wackernagel's hypothesis cannot be maintained and therefore cannot be used as an argument in the reconstruction of PIE word order.

1: In something like an appendix (pp. 425-34) to his famous 1892 paper on the ordering of clitics in Proto-Indo-European (PIE), Wackernagel tentatively proposed that in PIE main clauses (MC), the verb originally was clitic and--being clitic--occurred in clause-second position. His explicit and implicit arguments in favor of this claim can be summarized as follows:

(a) Early Sanskrit made an accentual difference between MC verbs, which ordinarily were accented, and dependent-clause (DC) verbs, which were accented; cf. (1) vs. (2) below (my examples). This pattern had been connected with the so-called recessive accent of Greek verbs² under the hypothesis that Greek had generalized the unaccented nature of the MC verb and had secondarily imposed on this verb a phonologically predictable new accentuation. The combined evidence of Greek and Sanskrit then was taken to indicate that the early Sanskrit accentual differentiation between MC and DC verbs was a feature also of PIE.

(1) índrah vrtrám áhan
 'I.' 'V.' 'slew'
 'Indra slew Vṛtra'

(2) yád índrah vrtrám áhan
 'when Indra slew Vṛtra'

(b) This accentual difference between MC and DC verbs should in Wackernagel's view have been accompanied by a difference in word order: Like other clitics, unaccented, clitic MC verbs would have to occur in clause-second position, while accented DC verbs would be clause-final. Wackernagel felt that this word order distinction was in fact preserved in German, and in early Germanic in general. On the other hand, the prevailing verb-final (or SOV) pattern of Sanskrit, Latin, and [early] Lithuanian could be explained as a generalization of the DC pattern. This, to be sure, left a certain unexplained residue in the relatively free word order of Greek and the verb-initial order of [Insular] Celtic.

(c) What is especially significant in Wackernagel's view is that Sanskrit, Latin, [early] Lithuanian, as well as ancient Greek show what he believed to be traces of an earlier clitic, clause-second position of the verb. For [early] Lithuanian, this consisted in the fact that the verb 'to be' frequently is second in its clause. Also for Latin, Wackernagel pointed to the frequent occurrence of 'be' in clause-second position. As for Greek, he noted a recurring formula in dedicatory and artisan's inscriptions with the order Subject + Verb + other constituents (including appositional (etc.) elements of the subject NP); cf. the following examples.

- (3) Alkibios anethēken kitharōidos ...
'A.' 'placed' 'kithara-player'
'Alkibios, the kithara-player, placed [me/this]'
- (4) Phanēs me anethēke tōpollōn[i]
'Ph.' 'me' 'placed' 'to the A.'
'Phanes placed me for Apollo'
- (5) Kuniskos me anethēke hōrtamos wergōn dekatan
'K.K.' 'me' 'placed' 'the b.' 'works' 'tithe'
'Kuniskos, the butcher, placed me (as) a tithe of his business'

Finally, for Sanskrit Wackernagel referred to the common formula of the Brāhmaṇas with initial pronoun or other deictic element, followed by optional clitic (ha, (u) ha sma, etc.), plus the verb, which in turn is followed by the other elements of the clause, as in (6)-(8):

- (6) sāḥ ha uvāca gārgyaḥ
'he' 'spoke' 'G.'
pcle.
'Now, Gārgya said ...'
- (7) té ha eté ūcuḥ devāḥ ādityāḥ
'they' 'they' 'said' 'gods' 'A.'
'Now, these Āditya gods said ...'
- (8) tád u ha sma āha āruṇiḥ
'that' 'said' 'A.'
'On that issue, Āruṇi used to say ...'

(d) In spite of this evidence, Wackernagel was clearly troubled by one thing: Clitics normally consist of two syllables or less; PIE verbs, however, can be considerably longer, thus furnishing rather unlikely candidates for clitics. Wackernagel therefore felt constrained to suggest that there may

have been a limitation--in terms of word length--on the extent to which MC verbs were clitics in PIE. However, he was unable to state the precise nature of these limitations.

2: Although only tentatively proposed, Wackernagel's hypothesis has been adopted by a variety of scholars, ranging from Behaghel (1929), who attempted to advance evidence outside of Germanic for a distinction between MC and DC word order, to Watkins (1963 and 1964), who added Mycenaean Gk. ho-agrese 'and he took' (W.'s transcription and interpretation) to the evidence while rejecting all of Wackernagel's data outside those from Sanskrit,³ to Friedrich (1975:32, cf. also 1976, 1977), who without further discussion draws on Wackernagel's hypothesis as one of his arguments against the reconstruction of PIE as having SOV word order. Also Dressler (1969:8) seems to accept Wackernagel's hypothesis.

This fairly wide-spread acceptance of Wackernagel's claim and the repercussions which it has for the reconstruction of PIE syntax clearly are significant enough to warrant a closer examination of the evidence on which it is based.

3: The purpose of this paper is relatively modest, namely to reexamine the evidence for Wackernagel's hypothesis provided by the Sanskrit formula documented in (6)-(8) above. In this context, however, it will become necessary to draw on similar constructions in Avestan and Homeric Greek, the evidence of which is, I believe, crucial for a proper historical understanding of the Sanskrit formula.

The proposed limitation of the discussion is justified on several grounds:

First of all, the clause-second, clitic positioning of the verb 'to be' in early Lithuanian, cited by Wackernagel as supporting his hypothesis, must be understood in a much larger context, namely that of the shift (discussed in Hock 1982) from SOV to SVO in most of the continental European Indo-European languages. This shift, though triggered by the movement of clitic AUX to clause-second position, is not a feature of PIE, but must be viewed as a relatively recent innovation, with parallels in Kashmiri and in certain West African languages. Also Wackernagel's Germanic and Behaghel's additional non-Germanic evidence for a difference between MC and DC word order can be explained in terms of a shift from SOV to SVO, a fact noted quite commonly and specifically demonstrated for Romance, Germanic, and Kashmiri in Hock 1982.

Secondly, the alleged early evidence for clitic, clause-second 'be' in Latin is far from cogent: As demonstrated by Marouzeau (1908), the appearance of 'be' in clause-second position is attributable not to clisis, but to the fact that 'be' and its attribute (A) functioned as a syntactic unit in early Latin, whose internal order was determined as follows: 'be' follows A under normal circumstances (as in (9) below); it precedes A under emphatic circumstances, where it often may be accompanied by an asseverative particle, such as hercle 'by Hercules' (cf. (10) and (11)). This internally determined ordering may put the verb 'be' in clause-second position, if some other constituent (such as the subject) precedes, as in (10). However, if no such constituent precedes, 'be' may appear clause-initially (cf. (11)), i.e. in an environment in which clitics are not permissible. Finally, according to Marou-

zeau, genuine clitic 'be', with phonological clitic-reduction, always follows A in the early Latin comedies of Terence and Plautus; hence (12) is permissible, but (13) is not. That is, genuine clitic 'be' does not move to clause-second position.

- (9) seruos bonus est
'servant' 'good' 'is'
'The servant is good'
- (10) seruos est bonus
'the servant is good (indeed)'
- (11) ... Est hercle inepta
'by H.' 'inept'
'she is inept (indeed), by Hercules'
- (12) seruos bonust (= bonus-(s)t)
clit. 'is'
'the servant is good'
- (13) seruos-(s)t bonus*

As for the Greek inscriptional evidence illustrated in (3)-(5) above, Wackernagel himself noted that there are numerous counterexamples to this pattern in Attic dedicatory inscriptions and that the earliest inscriptions likewise do not exhibit the pattern in a regular fashion. In fact, the earliest Greek inscriptions offer verb-initial patterns (as in (14)), verb-final ones (as in (15)), as well as Wackernagel's type (as in (16)). The latter construction, however, almost always contains a clitic m(e) before the verb. This type is still fairly common in the later inscriptions cited by Wackernagel (cf. (4) above). The other later types, especially the very common pattern exemplified in (3) above, may therefore be safely explained as secondary reinterpretations and extensions of the archaic type (16).⁴ This latter type, however, does not provide any cogent evidence for a clitic, clause-second verb. Rather, it can be quite convincingly explained as an 'amplified sentence' à la Gonda 1959, with a complete (SOV) sentence followed by extraposed non-essential material.

- (14) anethEke tOi pohoidani NikOn ...
'placed' 'the' 'P.' 'N.'
'He placed (into manumission) for Poseidon, N. ...'
(GDI 4591, Lacon. 5/4th c. B.C.; sim. GDI 4592, same date)
- (15) hiaron tO puthiO wiswodiqos anethEke
'sacred' 'P.' 'W.' 'placed'
'Wiswodiqos place the sacred object for the Pythian'
(Arkh. Eph. 1900:107, Theban, 6th c. B.C.; sim. GDI 4247, Rhodian, 6th c. B.C.)
- (16) simiOn m anethEke potEdawon[i ...
'S.' 'me' 'placed' 'to P.'
'Simion placed me for Poseidon'

Thus, of the evidence cited by Wackernagel in favor of his clitic MC hypothesis, only the early Sanskrit formula of (6)-(8) remains. As will be seen in the following discussion, however, this construction has parallels in Avestan and Homeric Greek. Moreover, if Watkins's interpretation of Myc. Gk.

ho-agrēse is correct, also this evidence must be added. Unfortunately, the Mycenaean evidence does not at this point seem amenable to the kind of detailed investigation here applied to the evidence of early Sanskrit, Avestan, and Homeric Greek. It will therefore be left out of consideration. Note however that if the interpretation of the Sanskrit, Avestan and Homeric patterns proposed in this paper is correct, it may provide an explanation-in-principle also for Myc. (h)o-agrēse etc., as resulting from two competing fronting rules, one affecting deictics/pronominals, the other, verbs.

4: Wackernagel's view that the Sanskrit evidence points to an earlier clause-second ordering of clitic MC verbs is by no means the only possible interpretation. Fourteen years earlier, Delbrück (1878:51-4) had noted that the pattern exemplified in (6)-(8) occurred almost exclusively with verbs of speaking (SPEAK), in the context of lively discussions or altercations (cf. (6) and (7)), or in the quotation of the opinion voiced by famous authorities on particular points (cf. (8)). Delbrück viewed these constructions as resulting from what we would now call extraposition of the subject, motivated by the fact that the subject is known and therefore weakly accented.⁵ To some extent, this may in his view have been further aided by the fact that these subjects are heavy noun phrases. Under similar conditions, the accusative-marked addressees of verbs of speaking could in Delbrück's opinion be occasionally extraposed, as in (17).

- (17) té ha devēḥ ūcuḥ bṛhaspátim āṅgirasám (SB 1.2.5.15)
 'gods' SPEAK 'B.' 'A.'
 'Now, these gods spoke to Bṛhaspati Āṅgirasa'

While in 1878, Delbrück explicitly ruled out (p. 54) the possibility of accounting for structures like these by a process of verb fronting (rather than NP extraposition), in 1900 he instead proposed to consider them a variant of the verb-initial constructions frequently encountered in the Indo-European languages with verbs of speaking (pp. 61-2 with 65). To paraphrase his explanation: The verb was to be fronted because of its importance. The occurrence of an initial connective, however, prevented the verb from being fronted to absolute initial position. As a consequence it went into the position in which it is actually found (cf. (6)-(8) above). A similar argument, but without direct reference to our constructions, is found in Brugmann's 1904 summarization (p. 683), where it is said that since anaphoric pronouns and other sentence connectors have to occur initially, the initial positioning of verbs [of speaking] had to be modified in Sanskrit.

Unfortunately, however, the exact details of this hypothesis were not worked out, nor was any explanation provided for examples like (17) above, which can be accounted for in terms of nominal extraposition, but for which a modified verb-initial explanation would be difficult. (On this latter count, Delbrück should perhaps not be faulted; for the construction of (17) probably does result from extraposition, a pattern coexisting with the structures which are the topic of this paper. Cf. type (VI) in section 6.)

5: In the remainder of this paper I will attempt to show that in spite of its shortcomings, Delbrück's later 'verb-fronting' hypothesis is the explanation which best accounts for the data, even though nominal extraposition may have been a contributing factor, especially as far as later reinterpret-

ations are concerned.

To do so I will first examine in some detail the attestations of our construction and its variants in the Sanskrit texts in which it occurs, viz. the prose texts of the post-Atharva-Veda Saṃhitās and the Brāhmaṇa/Āraṇyaka literature. (Section 6.) I will then discuss the synchronic patterns and processes in terms of which the construction(s) might be explained. (Sections 7-9.) Combined with the chronology of attestations, this synchronic evidence strongly suggests a verb-fronting hypothesis for this stage of the language. (Section 10.) Next I will examine the earlier Rig-Vedic (and Atharvanic) evidence indirectly relevant to the interpretation of the construction and assess the implications of this evidence for the verb-fronting hypothesis. (Sections 11-13.) Finally, I will show that Avestan and Homeric Greek offer evidence which provides further, comparative support for the proposed hypothesis. (Sections 14-16.) This leads to the conclusion that the verb-fronting hypothesis must be extended to PIE and that therefore our structures do not provide evidence for or against the reconstruction of PIE as SOV. (Sections 17-20.)

6: The prose texts of the post-Atharvanic Saṃhitās and of the Brāhmaṇas and Āraṇyakas (hereafter referred to as Vedic Prose) offer the following non-verb-final types of constructions involving SPEAK. Of these, types (I)-(V) typically occur in the contexts described by Delbrück as either involving a discussion or argument (i.e. a 'verbal exchange') or the views of a famous authority. This characterization is largely correct. In fact, the discourse context of discussions and arguments will turn out to be of considerable interest once the comparative evidence of Greek and Avestan is considered. (Cf. sections 15 and 16.) Synchronically, however, it is possible to give an even more general and, I believe, more accurate characterization of these constructions: Under normal circumstances, the structures in question are associated with a special discourse feature, namely that of attributing a certain authoritativeness to the participants in the act of speaking. Moreover, constructions (I)-(V) do not ordinarily occur in other contexts, even in lively discussions and arguments, where instead, verb-final order is the norm. That is, verb-final order and the types (I)-(V) are in quasi-complementary distribution. (Note however that there are some exceptions on either side, such as (19) below, a type (I) in a non-authority context.) Before going on to a detailed exemplification of these types, it might perhaps be interesting to give an example of how a switch in characterization of a speaker leads to a shift in construction, from 'ordinary' verb-final order to 'authoritative' type (I) construction:

- (18) té ha adityān ūcuh ... āṅgirasah agnāye anvāgātya cukrudhūh iva
 D P S SPEAK S X absolutive 'SPEAK' pcle.
 ... sā ha uvāca ... tasmād u ha sma āhuh āṅgirasah ... (SB 3.5.1.
 D P SPEAK D P P P SPEAK S 14-19)

'The Adityas said QUOTE. The Angirases, having approached, were angry (= inveighed) against Agni QUOTE. He (= Agni) said QUOTE. Therefore the Angirases said QUOTE (= the moral of the story, told by the Angirases as authorities).'

- (27) etad ha vai uvāca śaṅkaḥ kauśyaḥ putram ... (KS 22.6)
 D P P SPEAK S O
 'on this issue, Ś.K. said to (his) son ... QUOTE'
 (Sim. KS 22.7, KKS 41.7, JB, AB 2.25.2, ŚB 14.8.13.2)

(IV) The type Ḍ (P) (Ḍ) Ḍ SPEAK S/O/etc.:

This pattern, exemplified by (28), is exceedingly rare. It is not found in the earliest, *Samhitā* stage of Vedic Prose. Moreover, Delbrück (1888:23) claims that this type actually is disfavored, the ordering Ḍ (P) (Ḍ) Ḍ S/O/etc. SPEAK (my formulation) being preferred instead; cf. (29). While as (28) shows, this avoidance of type (IV) is not absolute, it does seem to hold true as a general tendency, at least for the *Śatapatha Brāhmaṇa*, where the ratio between type (28) and (29) constructions in 'authoritative' contexts is about 1: 5. Finally, in the *Aitareya Brāhmaṇa*, where the majority of type (IV) constructions are attested, most of these are found in the relatively later books. That is, it appears that type (IV) may well be an innovation and that Delbrück's constraint against this construction at one time was an absolute one.

- (28) té ha eté acub devāb ādityāb (ŚB 3.1.3.4)
 D P D SPEAK S
 'These Aditya gods said QUOTE'
 (Sim. ŚB 12.8.2.3; AB 4.27.9, 5.33.3, 7.34.7,8, etc.)
- (29) tād ha sma etād āruniḥ āha (ŚB 1.1.2.11)
 D P P D S SPEAK
 'on this issue, A. used to say QUOTE'
 (Sim. *ibid.*, ŚB 2.2.2.20, 2.3.1.31, 4.5.7.9 (2x), 5.5.2.5, 10.4.1.11, 11.2.6.12, 11.3.1.2, 11.7.2.8; cf. also KS 28.4, JB 1.175-8, AB 4.27.9)

(V) The type SPEAK (P) S:⁸

While relatively rare, this pattern occurs in all the early *Samhitā* prose texts, where many of the other constructions are quite rare. Thus in the *Kāṭhaka Samhitā*, the ratios of (I)-(V) are as follows:

(I)	(II)	(III)	(IV)	(V)
8	0	2	0	2

Among the later prose texts examined by me, only the *Śatapatha Brāhmaṇa*, the longest text, offers any examples. Moreover, it is perhaps noteworthy that all of the ŚB attestations, save 13.1.3.2, occur in direct discourse. Could it be that the relative rarity of this construction in Vedic Prose is a stylistic feature associated with the technical nature of these texts, while in reported speech the construction is more common?

- (30) uvāca ha viśvāmitrāḥ (TS 5.4.2.2)
 SPEAK P S
 (Sim. TS 5.2.10.3 = KS 20.9, KKS 31.11; KS 19.1 = KKS 31.3; ŚB 13.1.3.2, 14.6.3.2, 14.6.10.2,5, etc.)

(VI) Extraposited constructions:

Other non-verb-final constructions involving SPEAK can occasionally be found, such as (31) and (32) below; cf. also (17) above. Note however that these constructions do not seem to be specially marked for 'authoritativeness', although authorities may occasionally figure in them (as in (31)). Moreover, these constructions do not seem to differ in terms of their frequency of attestation and of their connotations from other patterns with extraposed constituents but not involving SPEAK; cf. (33) and (34). They therefore seem to be of no particular interest for the present discussion.

- (31) arunāḥ ha sma āha āupaveśiḥ (TS 6.1.9.2)
 S P P SPEAK S
 'Ar. Au. said QUOTE'
- (32) te devāḥ abruvan gāyatrīm (AB 3.26.1)
 D SPEAK O
 S
 'these gods said to the gāyatrī meter QUOTE'
- (33) na antarā paśuśīrṣaṇi vyaveyād adhvaryuḥ (KS 20.8)
 D X V S
 'the adhvaryu should not go in between the cattle heads'
- (34) sāḥ tātāḥ evā prāṇ dāhan abhiyaya imām pṛthivīm (ŚB 1.4.1.14)
 D D adv. pple. V O
 'burning from there to the east he (= Agni) crossed this earth'

Finally, it may be noted that verbs other than SPEAK may occasionally appear in constructions of the type (I)-(III),⁹ and with a similar 'flavor' of authoritativeness; cf. (35)-(37). Examples of this sort seem to be confined mainly to the latest texts, such as the Brhad Aranyaka portion of the Śatapatha Brāhmaṇa from which examples (35) and (36) are drawn. Moreover, they do not appear to occur in the earlier Saṃhitā prose texts. Finally, they tend to be found in contexts where type (I)-(III) constructions with SPEAK abound. The suspicion therefore arises that these are analogical extensions of the type (I)-(III) SPEAK constructions.

- (35) 'Type (I)' sāḥ ājagāma gautamāḥ (ŚB 14.9.1.7)
 D V S
 'Now, Gautama (an 'authority') came'
- (36) 'Type (II)' sāḥ ājagāma jaivalam (ŚB 14.9.1.1)
 D V O
 'He came to Jaivala (an 'authority')'
- (37) 'Type (III)' tām ājagāma súplā sārṇjayāḥ brahmacāryam
 D V S O
 (ŚB 2.4.4.4)
 'to him came S. S. (an 'authority') for studying'

7: The evidence of the preceding section suggests that there are just four constructions with SPEAK which are commonly associated with the special discourse feature of 'authoritativeness'. These constructions are (I)-(III), with the verb placed right after an initial string of accented deictics plus

optional unaccented sentence particle plus optional accented sentence particle; and (V), with the verb in initial position and therefore accented according to the general rule that clause-initial verbs are accented, even in MCs. On the other hand, there is reason to believe that construction (IV), with another accented deictic intervening between the initial string $\bar{D}(P)(\bar{P})$ and the verb, is an innovation and that at an earlier stage this construction was actively avoided. This suggests a certain complementarity between SPEAK and 'post-particle' accented deictics in the constructions under discussion.

Of the constructions thus likely to be inherited, namely (I)-(III) and (V), types (I) and (II) could well be interpreted as resulting from extraposition, comparable to what we find in type (VI). However, this interpretation is quite unlikely for (III), since 'multiple' extraposition, i.e. extraposition of more than one major constituent is otherwise virtually unheard-of at this stage of the language. Moreover, if we were dealing with simple extraposition, there would be no explanation for the early avoidance of construction (IV). In short, the totality of the evidence makes it unlikely that extraposition is responsible for the specially marked constructions under discussion. What is possible, however, is that the existence of the extraposed type (VI), combined with the possibility of interpreting (I) and (II) as extraposed, led to a later reinterpretation of our constructions as in fact resulting from extraposition. (What is important in this context is the fact that the reinterpretable type (I) is the most common sub-type of the constructions under discussion.) And this reinterpretation may then have led to the creation of type (IV), as well as the relaxation of the earlier constraint against this construction.

While extraposition thus is not likely to be the original motivation for constructions (I)-(III), the fact that the clearly fronted, verb-initial type (V) shares with (I)-(III) the special discourse feature of authoritativeness suggests that Delbrück's fronting hypothesis may be on the right track. At the same time, this possible affiliation, as well as the sheer existence of type (V), casts doubt on Wackernagel's clitic-verb hypothesis.

What needs to be still done, however, is to show if and how within the grammar of Vedic Prose, types (I)-(III) and type (V) can be accounted for as structurally related. To do so, it will be necessary to take a brief look at the structure of clause-initial particle and deictic strings in the language of Vedic Prose.

8: The ordering of elements in the clause-initial deictic/particle strings of Vedic Prose is frequently characterized only in a very general fashion, to the extent that accented pronouns (of the type ($\bar{s}\bar{a}/$) $\bar{t}\bar{a}$ -, ($e\bar{s}\bar{a}/$) $\bar{e}\bar{t}\bar{a}$ -) tend to occur initially and that other elements tend to occur immediately after the first accented word; cf. e.g. Delbrück 1978:47-8 (on pronominal clitics), 1888:22-23 (on pronouns and particles, with some more detailed observations on the relative ordering of some of these words on pp. 471-546); Wackernagel 1892 (passim on clitics); etc. However, more specific rules on the relative ordering of these words are hard to find. The closest thing to such a statement which I have come across is Delbrück's remark (1900:51) that in Sanskrit, as well as in Greek, clitic particles precede clitic pronouns.

In fact, however, strings of initial deictics and particles are so common in Vedic Prose that it is quite easy to establish a set of general principles, exceptions to which are rare at this stage of the language.¹⁰ Using the symbols already introduced, this set of principles can be given the following taxonomic form. (Note that one principle which can be discerned immediately is the fact that if all positions are filled by just one word each, the accent falls on every alternate position.)

$$\left\{ \begin{array}{c} \acute{d} \\ \acute{x} \end{array} \right\} (P) (\acute{P}) (D) (\acute{D}) X$$

That is, the clause begins with an accented word. This word may either be an accented deictic pronoun (most notably tā- 'that, this' or etā- 'this, that') or pronominal adverb (such as īti (quote), ātha 'then'), or it may be any word which is placed initially by reason of focus, emphasis, etc. Frequently such non-deictic initial words are marked by the following sentence particle vai or by the phrase- or word-bound emphatic particle evā. (This latter particle always follows the word which it emphasizes and is not otherwise restricted to any particular location in the clause; in the examples which follow it may therefore occasionally intervene between other, relevant elements.)

What is important for our further discussion is that, with a few, negligible exceptions (cf. note 10), this initial position does not permit 'doubling'; i.e., only one word may occur in this initial position.

The second position, if filled, is held by unaccented sentence particles, most notably u 'and, but, now', ha (weakly emphasizing), sma (emphasizing and/or indicating habitual past action). The second-position particles may double up; and, if u, ha, and sma thus occur in combination with each other, their relative order is the one in which they are listed.

The third position is held by accented sentence particles, most notably vai (emphasis, topic), and also āha (emphasizer), hī 'for, because', nū 'now, but', tū 'but', khālu 'indeed'. These particles likewise may double up, although this is not a common phenomenon. If doubling takes place, the normal order seems to be as follows:

$$(\acute{a}ha) \left(\begin{array}{c} \acute{t}u \\ \acute{n}u \\ \acute{h}i \end{array} \right) (khālu) (vai)$$

That is, tū, nū, hī seem to be mutually exclusive; as a set, they may be followed by khālu which in turn may precede vai. Note however that I have not noticed any sequences of the sort nū khālu vai; only nū khālu etc., nū vai etc., khālu vai seem to be attested. Moreover, in the Śatapatha Brahmana some examples with vai khālu are found (e.g. ŚB 1.8.2.10). As for āha, it is found before nū or vai. I have not noted any interaction of āha with other members of this class.

The fourth position is taken up by unaccented, clitic pronouns, such as mā 'me', me '(to/for/of) me', asya 'his', enām 'her'. I have not noted any passages in which these can double up. If doubling does occur, it would seem

quite rare. (Note, however, that there is some Rig-Vedic evidence for doubling in this position; cf. note 19 below.)

The final position of the string seems to be occupied by those accented deictics which because of the constraint against doubling in initial position could not be accommodated in that place. Doubling is clearly permitted in this position. I am not however aware of any internal ordering principles.

The following examples, in combination with the earlier Vedic-Prose citations, may suffice to provide some illustration of the above ordering principles.

- (38) ádanti ha sma vai etásya purāṇnam (KS 23.2)
 $\begin{array}{ccccccc} \bar{X} & & P & & \bar{P} & & \bar{D} & & X \end{array}$
 'They eat his earlier food'
- (39) dviśántam ha asya tād bhrātrivyaṁ abhyātiricyate (ŚB 3.1.1.3)
 $\begin{array}{ccccccc} \bar{X} & & P & & \bar{D} & & \bar{D} & & X \end{array}$
 'that remains over for his hateful enemy'
- (40) prā ha vai enam pásavo viśanti (MS 1.8.2)¹¹
 $\begin{array}{ccccccc} \bar{X} & & P & & \bar{P} & & \bar{D} & & X \end{array}$
 'the cattle turn toward him'
- (41) tāthā u evā eṣā eténa ... hánti (ŚB 4.4.2.13)
 $\begin{array}{ccccccc} \bar{D} & & P & & \bar{D} & & \bar{D} & & X \end{array}$
 'thus he slays with that one'
- (42) íti tú evā eṣā etát karoti (ŚB 5.4.3.2)
 $\begin{array}{ccccccc} \bar{D} & & \bar{P} & & \bar{D} & & \bar{D} & & X \end{array}$
 'thus he does this'
- (43) tām tú nah āgatāṁ pratiprábratad (ŚB 3.2.1.22)
 $\begin{array}{ccccccc} \bar{D} & & \bar{P} & & \bar{D} & & & & X \end{array}$
 'announce her to us as having come'
- (44) agnīḥ hí vai dhón (ŚB 1.1.2.9)
 $\begin{array}{ccccccc} \bar{X} & & \bar{P} & & \bar{P} & & & & X \end{array}$
 'for Agni (is) the yoke'
- (45) manuṣyāḥ íd nvá (= nú vai) úpastīpam icchanti (TS 1.6.7.3)
 $\begin{array}{ccccccc} \bar{X} & & & & \bar{P} & & \bar{P} & & X \end{array}$
 'human beings desire something strewn out'
- (46) prajāpatiḥ khālu vai tásya veda ... (TS 2.1.6.5)
 $\begin{array}{ccccccc} \bar{X} & & & & \bar{P} & & \bar{P} & & \bar{D} & & X \end{array}$
 'Prajāpati indeed knows of that ...'
- (47) tvām nú khālu nah ... bráhmisthaḥ asi (ŚB 14.6.1.4)
 $\begin{array}{ccccccc} \bar{X} & & \bar{P} & & \bar{P} & & \bar{D} & & & & X \end{array}$
 'you now are indeed the most learned of us'
- (48) nā āha nú evā etásya tāthā prajāḥ várūṇaḥ grhṇati (ŚB 2.5.2.4)
 $\begin{array}{ccccccc} \bar{X} & & \bar{P} & & \bar{P} & & \bar{D} & & \bar{D} & & X \end{array}$
 'Varuṇa does not thus seize his offspring'

What is important for our discussion is that all of the positions in these initial strings are syntactically 'arbitrary' and may in fact lead to

the separation of syntactically closely related words. Thus in (39), both dviśántam 'hateful' and asya 'his' are separated from their syntactic head noun bhrátrivya 'enemy'. Similarly, in (48) etásya 'his' has been separated from its head noun prajāb 'offspring'. It is thus clear that even the last position, that for non-initial \bar{D} , forms an integral part of this syntactically arbitrary initial string.

9: As far as the syntactic rule system is concerned which will account for the initial-string ordering just outlined, the placement of sentence particles causes no great difficulties. All we need to do is specify that sentence-scope particles (which can be lexically defined as a set) occur in post-first-position, with unaccented particles taking precedence over accented ones, etc.

In the case of deictic elements, however, as well as in the case of fronted non-deictics, it seems to be necessary to invoke movement rules, since--as we have seen--the placement of these elements into the positions in which they occur separates them from other elements with which they are closely related syntactically (in terms of agreement rules, etc.).

For non-deictics, that rule would be fairly straightforward, specifying that under certain discourse conditions, such as focus, emphasis, etc., individual words may be fronted. We may refer to this as Discourse Fronting. (The only difficulty would lie in the fact that it is necessary to state that no more than one word may be fronted, even if a given constituent consists of more than one word.¹²)

For deictics, however, it will be necessary (a) to account for the clitic pronouns and their behavior, (b) to state that fronting is (quasi-)obligatory for accented deictics, and (c) that such deictics will go to string-final position if the initial position is occupied by some other element (whether deictic or non-deictic). Let us refer to this as Syntactic Fronting.

We must further state that in case of conflict, Discourse Fronting always takes precedence over Syntactic Fronting, forcing syntactically fronted deictics into string-final position.

Moreover, there seems to be a tendency governing the positioning of some of the deictics in string-initial vs. string-final location: Of the two pronouns tá- and etá-, tá- more commonly occurs initially, etá- more commonly string-finally. Thus in Taittirīya Saṃhitā 5.2, the ratios for tá- vs. etá- in the two positions are as follows:

	initial	string-final
<u>tá-</u>	47	21
<u>etá-</u>	15	48

Moreover, in TS 5.1-2, there are 14 occurrences of initial tá- followed by co-referential, doubling, string-final etá-, but none with the obverse order.

This difference in ordering parallels a difference in behavior between the two pronouns when they are used as correlative pronouns co-referential with the relative pronoun of an adjoined relative clause (RC). Thus in TS 5.

6-7 I have found the following patterns. (No distinction is made here between string-initial and string-final placement of these pronouns. That patterning is entirely comparable to the one described above.)

	MC ... RC	RC ... MC
<u>tá-</u>	3	25
<u>etá-</u>	38	0

That is, etá- is used as a correlative only in MCs preceding their RCs, tá- is usually employed in MCs which follow their RCs.

This difference in behavior seems best accounted for pragmatically: tá- appears to function as a general¹³ deictic referring to earlier information. This accounts for its tendency to occur clause-initially (closest to the earlier information which it refers to), as well as for its preference for post-RC position (where again it refers backward, to the earlier information of the RC). etá-, on the other hand, seems to function as a general¹³ deictic introducing new information. This accounts for its tendency to occur string-finally (closest to the new information provided by the rest of the sentence), as well as for its pre-RC position in contexts where the relative clause serves to more clearly define the new information introduced by etá-, as in the following example.

(49) sadadí vaí esáh dadati yáh agnihotrám juhóti (MS 1.5.12)

X P D X rel.pr.

'He/that person gives continuously who offers a fire-sacrifice'

10: Given this background, we are now in a position to account for the ordering of SPEAK in the formulas of type (I)-(III), to relate these constructions to type (V), and to explain the early avoidance of (IV).

As has been observed by many linguists, the verb-initial order of (V) is quite common for SPEAK in the Indo-European languages; cf. e.g. Delbrück 1900: 61-2, Kroll 1918, Dressler 1969. Delbrück explained this ordering as a kind of emphatic fronting. Dressler, however, more plausibly tried to account for it as a text-linguistic (or discourse) phenomenon: In his view, PIE verb-initial position had two discourse functions, one being 'anaphoric' (referring to, or linking up with, earlier information), the other, less common one, being 'cataphoric' (referring to later information). It is this latter, cataphoric function which he sees in clause-initial SPEAK, as well as in clause-initial 'be' at the beginnings of narrations or in the meaning 'there is, there are...' (3, 10-11, and elsewhere).¹⁴

Let us now extend this interpretation to the initial uváca of type (V) by saying that this verb has been fronted not because it is emphatic (or anaphoric), but because it is cataphoric. Being fronted for a different reason, it may therefore also behave differently from other non-deictics. Now, as we have seen in section 8, the normal manner in which a conflict between Syntactic (deictic) Fronting and the Discourse Fronting of non-deictics is resolved is by the latter taking precedence, forcing fronted deictics into string-final position.

I propose that types (I)-(III) can be accounted for under the assumption that in cases of conflict between deictic fronting and cataphoric fronting of SPEAK, deictic fronting takes precedence, forcing cataphoric uvāca etc. into the same string-final position which houses fronted deictics in other cases of conflict. (Note that types (I)-(III) all have a string-initial deictic.) Under the assumption that in this string-final position, doubling is permitted only for members of the deictic class, this hypothesis will readily account also for the early complementarity between deictics and uvāca in string-final position and the consequent early avoidance of type (IV): Constructions of type (IV) would be in violation of such a constraint against doubling of deictics with non-deictics in string-final position. In addition, of course, under this (modified) fronting hypothesis, constructions of type (III) which, as we have seen, are difficult to account for as resulting from extra-position, pose no difficulties whatsoever. The same process(es) which account(s) for (I)-(II), as well as (V), will also yield type (III).

Finally, there is evidence which suggests that the postulated different behavior of cataphoric SPEAK (as compared to other fronted non-deictics) is not entirely ad hoc. This evidence consists of the fact (noted in section 9) that the equally cataphoric, deictic etā- likewise tends to go into string-final position, in case of conflict with other, anaphoric deictics. That is, we can state a general tendency, namely that in case of conflict, cataphoric elements more readily go into string-final position than anaphoric ones. Note in this respect that although cataphoric etā- may occasionally occur string-initially in type (I)-(III) constructions (cf. (21) and (27) above), this is quite rare; normally it is anaphoric tā- or other deictics which occur in this position (cf. the rest of the examples). Moreover, the fact that cataphoric etā- and cataphoric SPEAK both tend to go into the same, string-final position, combined with the putative constraint against doubling of non-deictics with deictics in that position, provides added motivation for the early avoidance of type (IV).

In short, the evidence of Vedic Prose, combined with general Indo-European evidence for cataphoric fronted SPEAK, suggests that structures of the type (I)-(III) result from a conflict between deictic fronting and cataphoric non-deictic fronting, which is resolved in favor of the deictic, forcing cataphoric SPEAK into the string-final position which also otherwise houses fronted elements which cannot be accommodated string-initially.

What is not clear, however, is whether this particular conflict resolution is an innovation of Vedic Prose or is inherited. The fact noted earlier, that type (V) in later Vedic Prose is more common in reported speech than in the normal, technical prose of the texts, might perhaps suggest that types (I)-(III) are an innovation, peculiar to Vedic Prose. However, only an examination of the Rig-Vedic and Atharvanic evidence and, ultimately, of similar constructions in Avestan and Homeric Greek can possibly provide any degree of certainty.

11: As it turns out, the evidence of the Rig- and Atharva-Veda seems to confirm the view that constructions (I)-(III) must be an innovation of Vedic Prose. For first of all, there seem to be no occurrences of constructions with the special 'authoritative' flavor which we find in Vedic Prose. Secondly, the long strings of deictics and particles + SPEAK, so characteristic of

the Vedic-Prose constructions, are conspicuously absent. All that can be found, beside the common verb-final structures, are constructions of the following types.

(A) Verb-initial:

- (a) Imperative: (50) prchāta id u tād ... (RV 10.81.4)
 SPEAK P D
 'ask ye that (+ ind. disc.)'
 (Sim. AV 1.7.4)
- (b) Emphatic: (51) vidmā hī te yāthā mānaḥ (RV 1.170.3)
 "SPEAK" P D
 'for we know how your mind (is disposed)'
 (Sim. 8.92.16; AV 7.76.5)
- (c) Cataphoric: (52) uvāca me vāruṇaḥ mēdhirāya (RV 7.87.4)
 SPEAK D S
 'Varuna said to me, to the wise one QUOTE'
- (53) īsyāmi vaḥ ... yūdyata ājau (RV 8.96.14)
 SPEAK D
 'I order you ... "fight in the battle"
 (Sim. RV 1.164.34 (2x), AV 3.8.2)

(B) 'Modified' initial position:

- (a) Imperative: (54) utā bruvantu naḥ nīdaḥ (RV 1.45.5)
 D SPEAK (D)¹⁵ S
 'and may our accusers say QUOTE'
 (Sim., without D, in RV 1.7.3)
- (b) Cataphoric: (55) ātha abravīt vṛtrām indraḥ haniṣyān (RV 4.18.11)
 D SPEAK
 'then Indra said (to Viṣṇu), about to slay Vṛtra, QUOTE'
- (56) īti bravīti vaktārī rārāṇaḥ (RV 10.61.12)
 D SPEAK S
 'thus says the giving speaker QUOTE'
- (57) prā nū vocam cikitūṣe jānāya (RV 8.10.15)
 X/D¹⁶ P SPEAK
 'I will now proclaim to the intelligent people QUOTE'
- (c) Anaphoric(?): (58) īti śuśrumā vayām (AV 8.9.18)
 D "SPEAK" S
 'QUOTE (thus) we heard'
 (Sim. ib. 12.4.48, 13.4.47, 50-54)
- (C) Extraposed (?): (59) nāsatyau abruvan devāḥ (RV 10.24.5)
 X SPEAK S
 'the gods said to the Nāsatyas'
- (60) utā enam aḥuḥ samithē viyāntaḥ (RV 4.38.9)
 D D SPEAK S
 'and they say of him, (as they are) going in different directions, QUOTE'

- (61) tēna mām abravīd bhāgaḥ (AV 6.82.2)
 D X SPEAK S
 'therefore Bhaga said to me QUOTE'
 (Sim. ib. 6.48.1)
- (62) īti tvā upastutāsyā vandate vīśvā vāk (RV 10. 115.8)
 D P X SPEAK S
 'QUOTE (thus) the mighty voice of Upastuta
 praises you'
 (Sim. passim)

As can be seen from these examples, the relative brevity of the sentences and the absence of long strings of deictics and particles, in many cases makes it difficult to distinguish between extraposed and modified-initial structures. In fact, unambiguous judgments are possible only for structures like (62). On the other hand, (54)-(60) are structurally ambiguous. It is only in terms of their discourse functions that it is possible to try to distinguish between modified-initial and extraposed structures. Thus, the imperative nature of (54) makes imperative fronting at least possible. In (55)-(57) (as well as in (54)), the verb SPEAK is, within the discourse, used cataphorically, directing the listener's attention to what follows. On the other hand, for (59) and (60) the context is less conducive to any 'marked' interpretation of SPEAK. Finally, (58) shares with the other constructions under (B) a certain sententiousness. However, since direct discourse precedes, it can hardly be interpreted as containing cataphoric SPEAK. Clearly then, even in terms of discourse context, there can be some disagreements concerning the interpretation of these constructions.

The best that can be said, then, is that the older language has clear evidence for clause-initial SPEAK constructions comparable to the later type (V) and possible evidence for a 'modified' initial construction comparable, but not demonstrably identical to the later types (I)-(III). None of these however has the special authoritative flavor of the Vedic-Prose constructions.

12: There is also some evidence in the structure of Rig-Vedic¹⁷ initial strings which may be taken to suggest that the Vedic-Prose initial-string structure shows innovations in certain aspects which may be crucial for our hypothesis.

As in the case of SPEAK constructions, so also for initial-string structures, the nature of the Rig-Vedic texts makes for certain difficulties. In the present case these consist in the fact that initial strings are by no means as conspicuously (and voluminously) attested as they are in Vedic Prose. Moreover, the much greater freedom in word order, a degree of scrambling unheard-of in Vedic Prose, seems to affect not only major constituents and non-deictic fully accented words, but also deictics and even clitic pronouns. Thus out of 286 occurrences of clitic pronouns in RV 8.1-21, a full 56 (or about 20%) occur outside of initial strings, in constructions like (63). Frequently, the clitic pronoun of such deviant structures is found attached to its head noun, as in (63).

- (63) áveḥ indra prá naḥ dhīyah (RV 3.21.12)
V X/P D O
'May you, Indra, aid our intentions'

Still, examination of a relatively small sample of Rig-Vedic text (8.1-21) quickly reveals that also Rig-Vedic Sanskrit had clearly-structured initial strings, even though their make-up may have differed in certain aspects from their Vedic-Prose counterparts.¹⁸

The major pattern which emerges is of the structure

$$\begin{matrix} \{ \overset{D}{\underset{X}{\text{}}} \} & (P) & (\overset{P}{\text{}}) & (D) & (\overset{D}{\underset{?}{\text{}}}) \end{matrix}$$

which differs from the Vedic-Prose pattern only as follows (disregarding the virtual absence of doubling in any of the positions¹⁹):

(a) It seems to be necessary to include in the string-initial set δ the adverbial/preverb elements á, ní, prá, etc. which in the later language normally are univerted with their verbs (cf. note 11). In Vedic Prose, their initial occurrence is quite unusual and is associated with emphasis, focus, etc. (cf. *ibid.*), suggesting that they have undergone Discourse Fronting, just like other non-deictics. In the Rig-Veda, however, clause-initial ordering is normal for these elements, at least in MCs, suggesting that they are fronted by the same Syntactic process which fronts deictics in Vedic Prose.²⁰

(b) Of more direct concern is the fact that the Rig-Vedic evidence for a string-final \bar{U} position is quite meagre: Only 22 out of a total of 309 relevant constructions (i.e. about 7%) have an accented pronominal deictic in this position. Taken by itself, this is perhaps not too significant, since also the (clitic) P position is filled relatively rarely (44 out of 309, or about 14%). However, there is no strong evidence suggesting that the position of "string-final" accented deictics is syntactically arbitrary, as we found it to be in Vedic Prose. Rather, it seems always possible to account for the placement of these deictics as syntactically motivated, as in (64) below.²¹

The following examples may suffice as illustrations:

- (64) āpa u sū nah iyām śāruh ... etu (RV 8.67.15)
 D P F D D S V
 'may this arrow go away from us'
- (65) sakṛt sū te mahatā ... mudmahī (RV 8.1.14)
 X F D X V
 'may we once again be happy with your greatness'

Confirmation that the Vedic-Prose string-final position of deictics may be an innovation comes from a rather unexpected quarter: As for instance Watkins (1963:29-30) noted, the relative pronoun (RP) may in Rīg-Vedic Sanskrit be found either clause-initially (in which case it seems to behave like all other string-initial elements; cf. (66) below), or it may appear in what Watkins refers to as clitic position, as in (67)-(70). While Watkins is certain-

ly correct in noting that relative pronouns may occur in two different initial-string positions, his statement can be improved upon: First of all, no matter where it is placed,²² the relative pronoun yā- is accented.²³ Secondly, there is evidence which suggests that non-initial accented yā- occurs in essentially the same accented, third position of initial strings as the accented sentence particles; cf. the possibility of unaccented sentence particles occurring before yā- (as in (67) and (68)) and the quite common occurrence of clitic pronouns after yā- (as in (67) and (69)). Occasionally, this seems to lead to doubling with accented particles, as in (70); however, the phenomenon is sufficiently rare to make it uncertain as to whether this is normal behavior or should be classified among the more deviant patterns of the Rig-Veda.

- (66) yād cid hí tvā jānāb imé ... hávanta (RV 8.1.3)
 RP P D S V
 'though these people invoke you'
- (67) sāb ghā yāb te dādāśati (RV 3.10.3)
 D P RP D V
 'who worships you ...'
- (68) pārā ha yād ... hathā (RV 1.39.3)
 D P RP V
 'when you smite away'
- (69) dhīyāb yāb naḥ pracodāyāt (RV 3.62.10)
 X RP P V
 'who may incite our thoughts'
- (70) prā nú yād eṣām mahinā cikitré (RV 1.186.9)
 D P RP D S V
 'when their greatnesses have become visible'

What is important for our discussion is that here we have an accented pronoun which like the deictics tends toward string-initial position and which like the deictics may in the Rig-Vedic language be prevented from going into that position by the appearance of another fronted element in string-initial position. (Note that in all cases of non-initial yā-, either a Syntactically Fronted or a Discourse-Fronted element occurs string-initially.) Unlike the deictics of Vedic Prose, however, yā- goes into the (accented) third position of the string, not into a "fifth", final, accented position.

This fact, combined with the rather weak evidence for "fifth", string-final position of accented deictics, may suggest that the Vedic-Prose pattern is in fact an innovation and that, therefore, the placement of SPEAK into this same position must perforce be an innovation.

13: Note, however, that the Rig-Vedic (and Atharvanic) evidence for Vedic-Prose innovation discussed in the two preceding sections is not necessarily cogent. First of all, the nature of these ('Vedic Poetry') texts differs considerably from that of Vedic Prose, both in terms of literary medium (verse vs. prose) and in terms of subject matter and style (poetic, reflective, devotional hymns vs. technical discussions of a ritual and, in the later portions, of a theological nature). It is therefore possible that some of the differences may be a matter of literary style (such as the authoritative use of constructions (I)-(III) and (V) in Vedic Prose vs. the absence of any such

connotations in Vedic Poetry). Moreover, long and variegated initial strings and relatively lengthy formulas like (I)-(III) are much more likely to occur in prose, where there are no clear limitations on sentence length, than in metrical poetry, where such limitations do exist, especially in Vedic Poetry where lines ordinarily are no longer than eight to twelve syllables and where run-on lines are quite rare. That is, the difference may be stylistic, not chronological.

Moreover, it may be argued that relative pronouns are different from deictic pronouns and cataphoric verbs and therefore may behave quite differently in their syntax as well.

Finally, and perhaps most importantly, it must be borne in mind that even if the "fifth", string-final position of Vedic Prose may be an innovation, it is hardly likely that it was created *ex nihilo*. Rather, it is more probable that it results from a reinterpretation of earlier existing structures. What may have been instrumental in this development is that the placement of relative pronouns into third position has effectively been abandoned in Vedic Prose, thus eliminating this structure (and the rules accounting for it) as a possible model for the placement of accented deictics. If, then, Vedic Poetry structures like (64) are reinterpreted as having deictic iyám not in syntactically motivated, pre-nominal position, but in syntactically arbitrary, string-final position, then this would easily bring about the patterning of Vedic Prose. The Vedic-Prose positioning of SPEAK into string-final position could be similarly accounted for by a reinterpretation of 'modified' initial structures like (55)-(57) as having SPEAK in string-final, rather than clause-medial position.

In short, while the evidence of Vedic Poetry may be suggestive of a Vedic-Prose innovation, it is not sufficiently strong to establish it. For it may well be taken to be attributable to stylistic difference. Even if there should have been an innovation, this may have come about as a reinterpretation and extension of patterns which already existed at the stage of Vedic Poetry.

14: It is because of this uncertainty of the Vedic-Poetry evidence that it is necessary to look beyond the internal evidence of Sanskrit, to the comparative evidence of other Indo-European languages.

There is quite general evidence that beside 'marked' VSO structures with the verb in absolute initial position (indicating emphasis or Dressler's anaphoric or cataphoric discourse functions), PIE had equally marked VSO structures in which the initial verb was preceded by a non-major-constituent element, especially by sentence-connecting adverbs and other similar elements. This is the so-called 'modified' initial position encountered in Vedic Poetry.

Unlike Vedic-Prose types (I)-(III), these structures were not restricted to SPEAK. There are, however, two ancient Indo-European languages outside Sanskrit which have constructions strikingly similar to Vedic-Prose (I)-(III) and (V) which likewise are limited to SPEAK and which are used under very similar, specialized discourse conditions. These languages are Homeric Greek and Avestan, the latter being especially interesting and significant because of its geographic and genetic proximity to Sanskrit.

Already Delbrück (1900:62) referred to one of the Greek types as a parallel to the Vedic-Prose patterns (I)-(III). Unfortunately, however, his discussion is extremely brief and general (cf. section 4 above). Moreover, his suggestion does not seem to have been followed up by other linguists. Finally, the evidence of Avestan has to my knowledge not been introduced into any discussions of the topic at hand.

The evidence of these two languages will be examined in the next two sections.

15: In Homeric Greek,²⁴ direct discourse may be introduced by various different orderings of SPEAK: verb-medial (71), verb-final (72), or even verb-initial (73). Of these, the types (71) and especially (72) are quite common, their relation being roughly the same as that of verb-final and verb-medial structures in other contexts. (Frequently, but not necessarily always, the verb-medial structures can be accounted for as 'amplified sentences' à la Gonda 1959, i.e. with extraposition of non-essential material; cf. e.g. (71).) On the other hand, the (anaphoric) fronted type (73) is exceedingly rare. (I have encountered only one example.) What is common to all these structures is that they are restricted to introducing isolated tokens of direct discourse or the initial direct discourse of a series of exchanges in a conversation, discussion, or argument.

- (71) pollà dè mètrí phíleí ērésato kheíras oregnús (1.351)
 X P X SPEAK S
 'and he prayed much to his dear mother, with outstretched
 hands QUOTE'
- (72) kálkhanta prōtista kák' ossómenos proséeipe (1.105)
 X S SPEAK
 'he, looking evil, spoke first to Calchas QUOTE'
- (73) (méssoi d'amphotérōn skēptra skēthon) eipé te mūthon kêrux
 SPEAK O S
Idaios ... (7.227-8)
 '(the two (messengers) held their staffs between the two
 groups) (Of them) Idaeus said (the following) word QUOTE'

A special formula, however, is found as a kind of link between quotes which are part of an extended verbal exchange. Note that this Linking Formula is virtually de rigueur, exceptions being exceedingly rare.

The most characteristic and constant element of this formula is the appearance of an initial anaphoric pronoun (in the accusative case) which refers back to the preceding speaker. Beyond that, there are a number of different variants; cf. (74)-(77). Several of these, however, can be explained as analogical to the non-formulaic patterns of (71) and (72); cf. (76) and (77). (Note that the verb-final type is quite rare.²⁵) Moreover, the more common of these structures, the verb-medial type (76) can be additionally motivated as an extension of patterns like (75), reinterpreted as having a member of the constituent S (i.e. of a major syntactic constituent) occurring in post-string position, rather than a participial form of SPEAK. (As a consequence of this reinterpretation, then, any number of other constituents may occur in this po-

sition.) It is only structures of the type (74) and (75) which are synchronically 'unmotivated', i.e. which cannot be accounted for a reinterpretations and/or as analogical on the model of the non-formulaic constructions. It is these structures, then, which are most likely to be archaic.

- (74) tòn d' ēmeíbet' épeita podárkēs díos Akhilleús (1.121)
 D P SPEAK X S
 '(QUOTE) to him answered in return fleet-footed, divine Achilles QUOTE'
- (75) tèn d' apameibómenos proséphē pódas ōkùs Akhilleús (1.215)
 D P SPEAK (pple.) SPEAK S
 or S
 '(QUOTE) tō her, answering, fleet-footed Achilles said QUOTE'
- (76) tòn d' Heléné mūthoisin eméibeto díā gunaikōn (3.171)
 D P S X (SPEAK) SPEAK S
 '(QUOTE) to him answered Helen with (these) words, divine among women QUOTE'
- (77) tèn d' aūt' Anténōr pepnuménos antíon eūda (3.203)
 D P D(?) S X SPEAK
 '(QUOTE) to her Antenor, the wise, said in reply QUOTE'

A special formula is used also at the conclusion of individual quotes or at the end of a verbal exchange (i.e., after the final quote of a conversation or argument). Also this Final Formula is virtually de rigueur. (Out of 60 relevant contexts in books 1-3, I have found only five not showing this formula.)

Unlike the Linking Formula, this Final Formula, however, comes in two, equally archaic (i.e. synchronically unmotivated) shapes, one being verb-initial (P), the other, 'modified' verb-initial (Q). Of these, the (P) variant is most fixed. Most commonly it consists of a single linguistic form, the synchronically highly aberrant and 'defective' verbal form ē. There are, however, structures like (78) and--more rarely--(79) in which the verb is followed by other elements. And it is these initial-string elements which conclusively show that ē is in fact clause- and string-initial.²⁶

- (78) ē rha (= ára) kaì es díphron árnas thēto ... (3.310)
 SPEAK P
 'QUOTE; he spoke (and placed a sheep into the chariot ...)'
- (79) ē toi hō g' (hōs eipōn kát' ár' hēzeto ...) (1.69; sim. ib. 101)
 SPEAK D D P D SPEAK D P V
 pple.
 'QUOTE; he spoke to him (thus speaking he sat down ...)'

The Q-type, characterized by the occurrence of hōs 'thus' in initial position,²⁷ shows greater variability; cf. (80)-(85). However, with the verb phē/pha- 'speak' the order is quite fixed, as in (80)-(82). (Thus, all 35 instances of Q with finite phē/pha- in books 1-3 follow this pattern.) Most deviations from this pattern show a participle of SPEAK in string-final position. They thus do not represent any serious counterevidence. Structures like (85),

with the verb in clause-final position, are quite uncommon and can be explained as occasional reshapings on the model of the non-formulaic type (72). What is important is that structures like (81) and the admittedly rarer (82) and (83) show that SPEAK is indeed fronted (before the subject and other elements of the sentence) and string-final (occurring after PD). The functional parallelism with the clearly fronted type P provides additional evidence in favor of a fronting hypothesis.

- (80) hēs éphat', éddeisen d' ho gérōn (1.33)
 D SPEAK
 'QUOTE; thus he spoke; and the old man got frightened'
- (81) hēs phátō Pēleídēs, potì dè skēptron bále gaíēi (1.245)
 D SPEAK S
 'QUOTE; thus spoke the son of Peleus, and he threw the staff down to earth'
- (82) hēs phát' apò ptólios deinòs théos (4.514)
 D SPEAK X S
 'QUOTE; thus spoke from the city the terrible god'
- (83) hēs ára tis eípesken Akhaiōnte Trōon te (4.85)
 D P D SPEAK X
 'QUOTE; thus would someone (= many a one) speak of the Achaeans and Trojans'
- (84) hēs eipōn proíēi ... (1.326)
 D SPEAK V
 ppl.
 'QUOTE; thus speaking he sent (them) forth ...'
- (85) hēs hoi mēn toiaúta pròs allēlous agóreuon (5.274)
 D D P D(?)²⁸ X SPEAK
 'QUOTE; thus they spoke to each other in this manner'

The evidence of Homeric Greek can be summarized as follows: Beside non-formulaic structures which more or less follow the general word order principles of the language, there exist two formulas which occur under specific discourse conditions: (a) a Linking Formula found in verbal exchanges, and (b) a Final Formula which marks the end of individual quotes or of verbal exchanges. Structurally, the synchronically most unmotivated and therefore most likely archaic exemplars of the Linking Formula and variant Q of the Final Formula are characterized by the appearance of an accented deictic in string-initial position and by the movement of SPEAK into string-final (or post-string?) position, preceding its subject and other elements of the clause. On the other hand, the P variant of the Final Formula is characterized by the fronting of SPEAK into string-initial position.

The structure and function of these constructions are quite reminiscent of what we found in Vedic Prose. This is most clearly the case with the Linking Formula, which is structurally and in its discourse function almost identical to the use of Vedic-Prose (I) and (III) in discussions and arguments; cf. section 6 above. The only difference is that in Vedic Prose an additional, 'authoritative' flavor attaches to the use of these formulas.

The variant P of the Final Formula is structurally comparable to Vedic-Prose (V) (as well as to Vedic-Poetry (A)(c), examples (52) and (53)). Functionally, however, there is a difference: Vedic-Prose (V) is cataphoric and authoritative, while Homeric P is anaphoric and otherwise unmarked.

Finally, the Q variant of the Final Formula is structurally comparable to Vedic-Prose (I)-(III) in so far as they have iti as string-initial element (cf. examples (23) and (24), as well as Vedic-Poetry (56) and (58)). Functionally, however, even if the special authoritative flavor of Vedic Prose is ignored, there is only a certain overlap with the Vedic-Prose formulas, in so far as Homeric Q occurs at the end of extended verbal exchanges. Note however that Q also occurs at the end of single direct-discourse utterances.

16: Just as in Homeric Greek and in (Vedic-Prose) Sanskrit, so also in Avestan²⁹ the ordering of SPEAK in the introduction of ordinary direct discourse is more or less the same as that for other verbs. Most commonly it is clause-final, as in (86); but extraposed structures, as in (87), can be found as well.

(86) gaoš zaotārem zavaiti (Y 11.1)

S O SPEAK
'The cow curses the Zastar QUOTE'

(87) aθa imam vacō framruyā vāreθrayniš (Yt. 13.20)

θ (θ) O SPEAK S
'then you should proclaim to her (this) speech, (you) being victorious QUOTE'

However, in discussions concerning important issues (mainly of a religious/theological nature) and usually involving important personages (Ahura Mazda, Zarathushtra, etc.), a different construction is found. As in the case of the Greek Final Formula and of Vedic-Prose (V) vs. (I)-(III), there are two variants of this construction, one (X) verb-initial, the other (Y) with the verb in string-final (or post-string?) position.

The variant X is found in structures like the following, which clearly show an order VS0:

(88) perəsaŋ zaraθuštrō ahurəm mazdām (Yt.14.1)

SPEAK S O
'Z. asked A. M. QUOTE'

(89) mraoŋ ahurō mazdā spitamāi zaraθuštrāi (Y 5.1)

SPEAK S (I)O
'A. M. said to Z., the Spitamid, QUOTE'

The variant Y appears instead of X in cases where the initial position is occupied by another fronted element. This may either be a preverb (as in (90)) or a deictic sentence-connective adverb (as in (91)). In both of these cases, a single, subject NP may follow the verb, or a sequence of subject NP and object NP; cf. (90)/(91) beside (92). Moreover, as (90) and (92) show, clitic pronouns are placed between the initial element and the verb, producing (mini-)

initial strings.

- (90) ā dim pərəsat zaraθuštrō (Y 9.1)
 prev. D SPEAK S
 'Z. asked him QUOTE'
- (91) āat mraot ahurō mazdā (Yt. 14.2)
 D SPEAK S
 'then A. M. spoke QUOTE'
- (92) paiti dim pərəsat zaraθuštrō arədvīm ... (Y 5.90)
 prev. D SPEAK S O
 'Z answered her, (namely) A. ... QUOTE'

What is especially instructive and confirms the structural and functional relatedness of X and Y is the fact that the two constructional types may alternate with each other in the same text, under the same discourse conditions. Thus (88) and (91) introduce two successive speakers (and their speeches) in two successive paragraphs of the same text. (This recurs *ibid.* 42 and 43, and similar patterns are found elsewhere, *passim*.) In addition, while type X may perhaps be more common at the very beginning of discussions, the preverb-initial variant of Y may occur in the same environment (cf. e.g. (90)). Clearly, then, both types of structure require a cataphoric verb-fronting hypothesis, with some mechanism (comparable to that found in Vedic Prose) which in cases of conflict places cataphoric SPEAK in string-final (or post-string?) position.

There is, however, some evidence which suggests that the mechanism by which fronted cataphoric SPEAK is put into string-final (or post-string?) position may differ in its details from what we find in Vedic Prose. First of all, construction (93), recurring four more times in the same text (and elsewhere), seems to offer a string-final accented deictic preceding (fronted) SPEAK. (At least, in Sanskrit this pronoun would be accented; there is no direct evidence on the accentuation of Avestan.) This may suggest either that the early Sanskrit constraint against string-final doubling of accented deictics with SPEAK did not hold in Avestan, or that SPEAK was placed in post-string position. A decision on this point would require a great deal more research on the structure of Avestan initial strings than is feasible in the present context. However, given the relative lateness of the Avestan texts, it is entirely possible that structures like (93) result from a relaxation of an earlier string-final constraint comparable to the late Vedic-Prose relaxation which made structures of type (IV) possible.

- (93) āat mē aēm paityaoxta haomō (Y 9.2)
 D D D SPEAK S
 'then Haoma replied to me QUOTE'

In addition, (94) below may suggest that in Avestan (unlike in Sanskrit) entire NPs, not just single words, can be put in initial position through Discourse Fronting. (Note that the initial NP seems to be fronted for contrast: Subsequent paragraphs detail the second and third wailings of A.) Moreover, this construction suggests that the fronting of any element (whether deictic or non-deictic) into first position leads to cataphoric SPEAK being placed in

Finally, it must be noted that the structures X and Y described above are found only in the later, 'Younger' Avestan texts. The older, 'Gāthā' language on the other hand offers no evidence in favor of a systematic use of these constructions to introduce QUOTES in discussions between important persons.³¹ True, we find occasional constructions such as (99), which look very much like Younger Avestan Y structures. However, in the same hymn we also find (100) and (101), with verb-final or extraposed ordering. It is also true, however, that though the context is something like a colloquy, the structure of that colloquy differs from that of the Younger Avestan discussions: In Yasna 29, the cow asks the Ahuras for its creator and for help. Then that creator "answers" by asking Aša 'Truth' about ways in which the cow might be helped. Finally, Ahura Mazda gives an answer to the cow. Unsatisfied, the cow at the end breaks out in renewed wailing. This differs markedly from the Younger Avestan discussions between two important individuals at a time. Such discussions simply do not occur in the Gāthas.

- (99) at ē vaocaṣ ahurō mazdā (Y 29.6)

Ḍ D SPEAK S

'then A. M. spoke QUOTE'

- (100) xšmaityā gəuš urvā gərəždā (Y 29.1; sim.ib.9)

X S SPEAK

'to you wails the voice of the cow QUOTE'

- (101) adā tašā gəuš pərəsaṣ ašəm (Y 29.2)

Ḍ S SPEAK O

'then the creator of the cow asks 'Truth' QUOTE'

This difference between Gāthā and Younger Avestan is strikingly similar to that between Vedic Poetry and Vedic Prose. Moreover, in the present case it is quite clear that the chronological difference really reflects a stylistic difference, such that the discourse contexts in which the constructions in question would be motivated happened not to be included in the subject matter of the older literature.

More important, however, are the quite striking structural and discourse similarities between Younger Avestan X and Y on one hand, and Vedic-Prose (V) and (I)-(III) on the other. In both cases we find a coexistence of structures in which cataphoric SPEAK has been fronted to initial position with patterns in which the verb has been fronted to a later, string-final (or in Avestan perhaps post-string) position. These constructions are used in very similar discourse contexts, namely in discussions between important personages. True, the Avestan constructions do not have quite the same authoritative flavor, but this seems to be a relatively minor difference. (In fact, there are isolated occurrences of structures like (89) outside verbal exchanges, where the only thing motivating the use of the construction seems to be the fact that an important person is speaking. This is for instance the case at the beginning of Yasht 10. Perhaps these cases constitute the beginning of a reinterpretation comparable to what must have happened in Sanskrit.)

17: Surveying now the evidence of (Vedic-Prose) Sanskrit, Avestan, and Homeric Greek, we find agreement on a number of important points.

First, all three languages agree on a special formulaic expression employed in verbal exchanges. (Let us refer to this as the Verbal-Exchange Formula.) There are, to be sure, certain differences in the discourse conditions under which the formula is used. In Greek it is used in all verbal exchanges, whether these are conversations, discussions, or arguments; whether the participants are human or gods, male or female, important or relatively unimportant (such as Thersites). A more specialized use is that in Avestan, where the formula is used only in discussions between important personages (with some evidence for incipient generalization as an 'important-person' construction). Finally, in Sanskrit the construction has a special authoritative flavor and may be used in reference to the sayings of authorities outside of verbal exchanges, simply as an indication that the person who says or said something on a particular issue is an authority.

Although it is difficult to be absolutely sure on these matters, because reinterpretations easily can go one way or the other, it does seem likely that if the formula is inherited, the Greek usage is the most original, that the more restricted use in discussions between important personages was an Indo-Iranian innovation, and that the Vedic-Prose usage is the result of a further restriction to authoritative figures, plus a reinterpretation and generalization of this authoritative use as the primary function of this formula. (For this latter development compare the possible parallel in Avestan.)

In addition, there is suggestive, but less cogent evidence for a quotative formula. This formula is fairly well established for Greek and Sanskrit. In Avestan, however, the evidence for such a formula with fronted SPEAK is considerably weaker. Moreover, Sanskrit has, beside its *īti*-initial variants of Vedic-Prose (I)-(III), various other constructions with *īti*, including the type SPEAK + QUOTE + *īti*. Further, these Sanskrit constructions have developed a range of further special uses. (These issues are discussed in greater detail in my other contribution to this volume.) Finally, note that Greek occasionally shows a variant of its Final Formula in pre-discourse environment; cf. note 27. Because of these various difficulties it seems advisable to disregard this formula in the subsequent discussion, except to the extent that it may provide ancillary evidence for the Verbal-Exchange Formula.

Having thus restricted our scope, let us take a look at the structural properties of the Verbal-Exchange Formula in Sanskrit, Avestan, and Greek:

(a) All three languages agree on a structure with string-final (or post-string?³²) placement of SPEAK in constructions with initial deictics. In Greek, these deictics always are pronominals (*tón*, *tén*). But note adverbial *hōs* in the structurally related Final Formula. In Avestan they are always adverbial (*āat*), including preverbal *paiti* etc. In Vedic-Prose Sanskrit we find both pronominal (*sāh*, *tām*, etc.) and adverbial (*ātha* etc.) initial deictics. Overall, then, the evidence would seem to point to both pronominal and adverbial deictics being possible in formula-initial position, with different languages following different routes toward specialization.

(b) Avestan further offers a pattern of initial non-deictics in constructions with SPEAK in string-final position; cf. example (94).

(c) Moreover, Sanskrit and Avestan agree on having an alternative, SPEAK-initial ordering in those cases where there is no other string-initial element. Though Greek does not have any direct evidence for this ordering, it shows such structures as alternatives to string-final SPEAK in its Final Formula variant Q. (Note also the cross-linguistic Indo-European evidence for cataphoric fronting of SPEAK.)

18: These structural and functional similarities certainly are striking. The question therefore must arise as to whether the formula characterized by these similarities should be reconstructed for PIE. (Strictly speaking, it might be possible that the relevant ancestral stage is not PIE, but some intermediate proto-language. This issue clearly is beyond the scope of this paper and will therefore be ignored.) To decide this question it will be necessary to show not simply that we can reconstruct (any shared similarities between two related languages "can" be reconstructed, given enough ingenuity), but whether we must reconstruct. That is, are the similarities such that they cannot be attributed to chance, borrowing, or independent innovation?

In our present case, the similarities are, I believe, too striking and too idiosyncratic to be attributable to chance. And the chronological stage at which borrowing would become a possible alternative explanation would be so close to the ancestral language that it would be difficult to meaningfully distinguish between borrowing and common inheritance, especially if dialectal borrowing within PIE might be involved.

There are however some possible arguments for independent innovation. One of these consists in the fact that as noted, our formula is not attested in the earliest stages of Sanskrit and Avestan, but only in Vedic Prose and in Younger Avestan. This may be taken to be prima-facie evidence for independent innovation. As we have seen, however, there is good reason to believe that the difference between Gāthā and Younger Avestan is one of style and subject-matter, not of chronology. Similar, but more circumstantial arguments were made for Sanskrit; cf. section 13. In light of the Avestan situation, these arguments are considerably strengthened.

Another possible argument for Sanskrit innovation, namely the early fronting of the relative pronoun yá- into string-medial, rather than string-final position (cf. section 12) likewise is not particularly cogent: As argued in section 13, (cataphoric) SPEAK and the relative pronoun do not necessarily have to behave in the same fashion. Moreover, the comparative evidence of Avestan and Greek is firmly in favor of the Vedic-Prose string-final ordering of non-initial fronted SPEAK.

It may still be argued, however, that instead of the Verbal-Exchange Formula, Sanskrit, Avestan, and Greek inherited certain syntactic patterns and processes which, combined with the discourse features of SPEAK, could lead to independent developments of our Formula: As is well known, PIE had two variants for verb-initial (or VSO) ordering, both of which could occur with any fronted verb. (Examples are most commonly found for imperatives and other modal constructions used in imperatival function. Most of the examples quoted below therefore are of this 'imperatival' nature.) One of these had the verb in absolute-initial position, the other, so-called 'modified'

initial order had another element preceding the verb. (Cf. also sections 10 and 14 above.) It is the latter order which is of particular interest, for as examples like (102) show, non-SPEAK verbs occurring in such modified-initial structures may, just like the SPEAK of our Formula, be preceded by unaccented clitic pronouns and thus occur in string-final position:

- (102) néd evá mā yunájan átra devāh (RV 10.51.4)
 D D V33
 'lest the gods employ me here'

Similar structures may result from the fronting of preverb + verb constructions, where examples like (103) show that clitics go between the preverb and the verb:

- (103) prá vām aśnotu suṣṭutīb (RV 1.17.9)
 D D V S
 prev.
 'may the praise reach you'

Moreover, in constructions with preverbs in initial position and relative pronoun in second position, fronted verbs would in effect wind up in string-final position, as in (104). (I do not have in my file any relevant examples with clitic particles and/or pronouns. But that may be a matter of accident.)

- (104) prá yé minānti váruṇasya dhāma (RV 4.5.4)
 D RP V33 O
 prev.
 'who diminish Varuṇa's laws'

Under these conditions, one may argue, would it not be possible for some languages to independently specialize such string-final verbal constructions with verbs of speaking, especially considering the cataphoric nature of SPEAK? (Compare the arguments in section 10, concerning Vedic Prose.)

While at first sight this hypothesis appears quite attractive, a closer look reveals a number of difficulties: First, with verbs other than SPEAK, only a few types of initial elements can bring about such "string-final" structures, namely adverbials (including preverbs and adverbial NPs) and/or relative pronouns. As we have seen, however, the Verbal-Exchange Formula may have non-adverbial deictic pronominals in string-initial position. (In Avestan we even find full NPs; but this might be an innovation.)

Secondly, there is evidence suggesting that structures like (102)-(104) were not the only possible outcomes of a conflict between verb fronting and the fronting of other elements. Thus in (105) below, the fronted verb is accented, i.e. treated as initial in its MC, even though it is preceded by a deictic adverbial.³⁴ In (106), a deictic adverbial and a preverb seem to double up in initial position, being followed by clitic elements.³⁴ Finally, in examples like (107) the conflict is resolved by inverting the order of preverb and verb.

- (105) utá bháveḥ āpī nah āntamah (RV 8.45.18)

 'and may you be our deepest friend'
- (106) ātha ā nah vardhaya girāḥ (RV 3.29.10)

 prev.
 'then make our praises grow'
- (107) jáyema sám yudhí spṛdhah (RV 1.8.3)

 prev.
 'may we totally defeat the enemies in battle'

Compared to this variety of patterns which could result from the conflict between general verb fronting and the fronting of other elements, it is remarkable that Sanskrit, Avestan, and Greek agree on a single, string-final ordering of fronted SPEAK in the Verbal-Exchange Formula. Surely, had these languages engaged in independent innovations, one might have expected their generalizations to have been more divergent.

Finally, it is difficult to see how independent innovations could have led to the remarkable similarities in discourse function which we have observed. Even without the other, structural arguments, this consideration alone would strongly argue against independent innovation.

19: In the absence of credible alternatives, then, it seems necessary to reconstruct our Verbal-Exchange Formula for the proto-language. Such a reconstruction of course further entails that in this formula (and perhaps occasionally also elsewhere?), the conflict between verb fronting and the fronting of other elements was, in contradistinction to other conflict situations, resolved by the cataphoric verb of speaking going into string-final position.

Under this hypothesis, the Vedic-Prose types (I)-(III)--as well as their Avestan and Homeric congeners--thus are in their essential outlines inherited from PIE.

20: Moreover, given that the string-final SPEAK of these constructions results from a conflict of fronting processes, these structures cannot be considered to support what was the starting point for this discussion, namely Wackernagel's hypothesis that PIE had clitic verbs in main clauses which, being clitic, moved into clause-second position. (Note that even if the proposed reconstruction of the Verbal-Exchange Formula is not accepted, the arguments presented here for the positioning of SPEAK as resulting from a conflict between fronting rules would remain unaffected.)

This, then, eliminates the last piece of evidence for Wackernagel's claim and in so doing eliminates Wackernagel's hypothesis from the arguments which can be adduced against the reconstruction of SOV as the major-constituent order of PIE.

NOTES

¹Research on this paper has been in part supported by 1979-80 and 1982-83 grants from the University of Illinois Research Board.-- For perspicuity's sake, Sanskrit examples will from now on be given in their pre-pausal form, not in their actually attested sandhi forms.

²(Most) Greek finite verbs retract the accent as far to the left as permissible within the restrictions of the 'law of 3 moras'. Contrast this with the fact that with the exception of clitics, all other formal categories of Greek have 'lexical' or contrastive accents. (For details, see e.g. Schwyzler 1939:378-82.)

³In his 1963 paper, Watkins also introduced putative Old Irish evidence (p. 22), only to dismiss it in an addendum on p. 49. Moreover, in his 1964 paper, Watkins raised the possibility that since Greek and Sanskrit are the only languages with verb clisis and with a distinction between accented and unaccented verbs, the clause-second patterns of these languages may be due to independent innovations (1042). The evidence to be presented in this paper will, I hope, show that also this view is not acceptable.

⁴The major innovation of the later Greek inscriptions seems to lie in the reinterpretation of me as redundant and therefore omissible. This made possible the very common constructional type (3), as well as occasional examples of the type praxitelēs anethēke surakosios tod' agalma 'Praxiteles the Syracusan placed this statue', with appositive plus direct object following the clause-second verb.

⁵Hermann (1895:502-4), in a paper whose general argument in favor of PIE as having had no dependent clauses is hardly acceptable, proposed that the extraposed NFs should be considered heavily, contrastively accented.

⁶Note the following abbreviations:

ḍ = stressed deictic, including pronominal sá/tá-, eṣá/etá-, as well as quotative íti, connective átha 'then', and ápi 'also'

D = unstressed pronominal (both deictic and personal)

ḥ = stressed sentence-scope particle, such as hí 'for, because', vaí (emphasis, topic)

P = unstressed sentence particle, such as u 'and, but, now', ha (slightly emphatic), sma (emphatic and/or indicating habitual action in the past).

SPEAK = verb of speaking (and other verbs governing QUOTE)

QUOTE = direct discourse

S = subject

O = object, including accusative-marked addressee

V = verb (other than SPEAK)

X = other or structurally arbitrary constituent

⁷Because the distinction between unaccented and accented forms will become important in the subsequent discussion, I have tried to give examples from accented texts wherever possible. In some cases, however, relevant attestations come from a text whose accentuation has not been preserved or has been incompletely preserved. (This is the case for KKS, AB, JB, and many portions of KS.) In such cases, the symbols \acute{D} vs. D , \acute{P} vs. P may serve as a guide to the accentuations which would be expected, had the texts preserved them.

⁸Note that clause-initial verbs are always accented in Sanskrit, even in MCs.

⁹Verb-initial constructions superficially similar to (V), on the other hand, are extremely frequent (even if marked, compared to verb-final order). However, these constructions lack the special 'flavor' of types (I)-(III) with verbs of speaking.

¹⁰One set of exceptions is constituted by the fact that certain sentence-connective, quasi-conjunctive accented adverbs, most notably átho (= átha + clitic particle u) may occur in initial position without behaving like initial accented elements: As Delbrück (1888:36 and 484) observed, verbs following átho may be accented as if they were themselves clause-initial (as in TS átho punāti evā enam 'then he cleans him'); and/or other constituents may intervene between átho and the accented sentence particle vaí (as in átho mánasa vaí prajāpatiḥ vajñám atanuta (TS 1.6.8.4) 'then, with his mind Prajāpati spread out the sacrifice'). Passages with such quasi-conjunctive elements, which may 'double up' in the initial position, have been ignored in the following discussion.

¹¹This is an example of what traditionally has been called 'tmesis', i.e. the positioning of a preverb away from its verb (and in initial position). This raises the interesting question as to how the fronting of preverb-verb combinations interacts with the placement of deictics and sentence particles. It is well known that under conditions where uncompounded verbs simply are fronted (as in example (38)), preverb-verb compounds may either simply front the preverb (as in (40)), or they may front as a unit, as in (a) below. In addition, however, we also find examples like (b), in which the preverb is fronted and the verb appears in the position where non-initial \acute{D} would be expected. Moreover, if that position is filled, then, it appears, the verb cannot be fronted at all; cf. (c). Unfortunately, constructions of this sort, with a sufficiently large number of relevant words and constituents to permit an unambiguous interpretation, are not very common, making it difficult to be certain that constructions of the type (d) are not permissible. If it should in fact turn out that also here, verb-fronting to non-initial position is blocked if the second \acute{D} position is filled, this would provide valuable confirmation for the hypothesis proposed in this paper.

(a) ví bhajante ha vaí imám ásurāḥ prthivīm (ŚB 1.2.5.3)

prev. V P \acute{P} \acute{D} S O

'the Asuras divide up this world'

- (b) $\frac{\text{v}\bar{\text{i}} \quad \text{va}\bar{\text{i}} \quad \text{te} \quad \text{mathiṣyāmahe} \quad \text{imāḥ} \quad \text{prajāḥ}}{\text{X} \quad \text{P} \quad \text{D} \quad \text{V} \quad \text{O}}$ (ŚB 2.5.1.12)
prev.
'we will tear up these creatures of yours'
- (c) $\frac{\text{ā} \quad \text{ha} \quad \text{va}\bar{\text{i}} \quad \text{asmīn} \quad \text{svāḥ} \quad \text{ca} \quad \text{nīṣṭyāḥ} \quad \text{ca} \quad \text{śamsante}}{\text{X} \quad \text{P} \quad \text{P} \quad \text{D} \quad \text{S} \quad \text{V}}$ (ŚB 1.6.4.17)
prev.
'in him his own people and strangers trust'
- (d) $\frac{\text{v}\bar{\text{i}} \quad \text{va}\bar{\text{i}} \quad \text{etād} \quad \text{mathiṣyāmahe} \quad \text{prajāḥ}^*}{\text{X} \quad \text{P} \quad \text{D} \quad \text{V} \quad \text{O}} \quad (?)$
prev.
'we will now/here tear apart the creatures'

¹²In addition, special allowances must be made for preverb-verb compounds; cf. the preceding note.

¹³In addition, there are the locationally marked deictics asaú/adāḥ 'that one yonder' and ayām/idām 'this one here'. These do not seem to show any placement preferences comparable to those of tā- and etā-.

¹⁴Already Delbrück (1900:59) had proposed an explanation along these lines for clause- (and story-)initial 'be'.-- It is interesting to note that one of the early Sanskrit words for legendary stories is itihāsa-, attested as early as the Atharva-Veda. This word is clearly derived from a clausal structure of the following form:

$\frac{\text{īti} \quad \text{ha} \quad \text{āsa}}{\text{D} \quad \text{P} \quad \text{V}}$
'thus it was ...'

Could this have been an (unattested) variant on the typical āsīd rāja- 'there was a king ...' of later stories, comparable to īti ha uvāca ... beside uvāca ha ... ?

¹⁵As will be seen later, the presence of clitic pronominal naḥ after bruvantu does not necessarily indicate anything about the status of SPEAK in Rig-Vedic initial strings: Clitic pronouns not uncommonly occur outside initial strings, frequently next to their syntactic head nouns.

¹⁶For the fact that at this stage of the language, string-initial preverbs act like members of the set D, cf. section 12.

¹⁷I have not made a separate study of the Atharvanic evidence. Impressionistically, there do not seem to be any major differences.

¹⁸Disregarding structures with the relative pronoun in accented second position, the ratio of 'lawful' behavior to occurrences outside of strings is quite impressive for a textual tradition characterized by heavy scrambling:

P	44	:	1	(= 98% : 2%)
P̄	64	:	2	(= 97% : 3%)
D	230	:	56	(= 80% : 20%)

¹⁹The only examples of doubling which I have located in the sample are ha svid (P + P) in 8.21.11 and, interestingly, because of its rarity or even absence in Vedic Prose, ta enam (D + D) in 8.1.17.

²⁰There are, to be sure, certain exceptions and limitations to the Syntactic Fronting of these elements. For some details cf. Delbrück 1888:44-49.

²¹Some further, minor complications are the following: (a) the accented sentence particle hi seems to be able to double up with string-initial elements and may then be followed by unaccented particles, yielding sequences of the type sáh hí sma (8.21.10). In the case of doubling with initial ná 'not', this seems to lead to univerbation, indicated by the single accent in nahí 'for not'.-- (b) Similarly, the sentence particle vaí may be followed, rather than preceded, by the clitic sentence particle u. Cf. e.g. at 1.126.11.-- Only a complete study of the Rig-Vedic evidence can show whether these are significant deviations or can be explained as occasional scrambling phenomena.

²²Except for clause- or verse-final yathā 'like, as', whose optional lack of accent seems to be modeled on unaccented NP-scope iva 'like, as'; cf. e.g. Delbrück 1888:26.

²³In this respect (as well as in its early positioning in initial strings) yā- resembles the PIE particles nu, su, and to which likewise may appear either string-initially or in a later position of initial strings, both in Sanskrit and in various other Indo-European languages. Watkins (1963:16-17) refers also to these particles as clitic, if they occur in non-initial position. However, here again it must be noted that to the extent that Sanskrit has preserved them in relevant positions, these particles always appear accented. In Greek, to be sure, Watkins finds unaccented outcomes of nu in Arado-Cypriot hó-nu, hó-ni. However, note first of all that these forms are not attested in accented texts. (Their accentuation is postulated on the analogy of the functionally parallel Attic hó-de.) Moreover, these are univerbated expressions which may have undergone similar accent reductions as Skt. *nāhí > nahí. At the same time, it is certainly true that (some of) these particles and perhaps also a cognate of the relative pronoun *yó- appear in the complicated initial strings of Anatolian (cf. Watkins, *ibid.*); and the common wisdom is that the non-initial elements of these strings are unaccented, clitic. It is therefore possible that the Sanskrit accentuation is secondary, perhaps introduced by a phonological rule accenting even-numbered clitics (from left to right) in initial strings. Note however that such an account of the Sanskrit situation is not without its own difficulties. For as noted, the string-initial element may be followed by more than one unaccented sentence particle, without the second particle receiving an accent. Moreover, the appearance of accented sentence particles in Greek (cf. e.g. Delbrück 1900:54), the only other ancient Indo-European language with distinctive accent, should give pause. Finally, we know nothing about the accentuation of Anatolian, including its initial strings. Given these facts, it seems appropriate to limit the discussion to the actually attested evidence of Sanskrit.

²⁴All references are to the Iliad.-- My discussion is based on the data mainly from the first three books of the Iliad, which I have studied system-

atically for relevant evidence. I have cross-checked my findings against the remainder of the first twelve books, observing no significant deviations.

²⁵ It is interesting that the three specific examples I have noted (3.203, 6.381, and 11.822) all have the structure

$$\frac{\text{tōn/tēn}}{\text{D}} \quad \frac{\text{d(ē)}}{\text{F}} \quad \frac{\text{aūt(a)}}{\text{D(?)}} \quad \text{S} \quad \text{X/O} \quad \text{SPEAK}$$

with what looks like a \bar{D} in string-final position. Could we here be dealing with the same string-final constraint against doubling of SPEAK with deictics as the one which in early Vedic Prose led to the avoidance of type (IV)? The similarity is tantalizing. However, to make a good case for this comparison, a more in-depth study of Homeric initial strings would be required.

²⁶ Note that (79) may suggest that in Greek the fronting of SPEAK may lead to the placement of accented deictics ($\bar{hō}$) into string-medial position (comparable to the placement of $\bar{yā}$ - in Vedic Poetry). However, note that the order clitic pronoun + accented pronoun + clitic sentence particle in (79) violates the normal relative ordering of (clitic) sentence particles before (clitic) pronouns, suggesting that this structure may perhaps result from scrambling. Structures of this sort are not common enough to determine what, if anything, would be their normal order.

²⁷ Occasionally this structure, or something very similar to it, may appear also before QUOTE, as in the example below. The few examples of this construction which I have noted are all very similar, introducing something like a "generic" quote, i.e. a more or less fictitious quote which sums up the tenor of what people might have been saying about a particular person or event. (It is at the end of one such quote that the formula of example (83) is found.)

$$\frac{\text{hōde}}{\text{D}} \quad \frac{\text{dé}}{\text{F}} \quad \frac{\text{tis}}{\text{D}} \quad \frac{\text{eípesken}}{\text{SPEAK}} \quad \frac{\text{Akhaiōn}}{\text{X}} \quad \frac{\text{te Trōōn}}{\text{X}} \quad \text{te} \quad (3.207, \text{sim.ib.319})$$

'thus would someone (= many a one) speak of the Achaeans and Trojans QUOTE'

²⁸ Here again we have a verb-final pattern with what looks like an accented deictic in string-final position. Could this be further evidence for an avoidance of doubling of SPEAK with accented deictics in string-final position? (cf. note 25 above.)

²⁹ For Avestan I have worked through the Gāthas and the Hymn to Mithra (Yt. 10), in the Romanized editions by Humbach (1959) and Gershevitch (1967). Beyond these I have relied on the evidence of the Romanized selections in Reichelt 1909 and 1911.

³⁰ Cf. Bartholomae 1904: s.v. uīti.

³¹ Gātha Avestan also offers one attestation of quasi-quotative uīti. As it normally does in Younger Avestan, this uīti occurs directly before SPEAK. (Cr. Y 45.2.)

³²But note that Avestan (93) may be innovated, just like late Vedic-Prose (IV); cf. section 16. In addition, Greek may offer some evidence for the same constraint against type (IV) structures as early Vedic Prose; cf. notes 26 and 28. For these reasons, as well as for ease of exposition, the distinction between string-final and post-string positions will be abandoned in the following discussion, in favor of the term 'string-final'.

³³The accentuation of this verb does not follow from fronting, but from other accentuation rules of the language.

³⁴Cf. note 10 above for similar patterns in Vedic Prose.

ABBREVIATIONS OF TEXTUAL REFERENCES

Avestan: Y = Yasna, Yt. = Yasht, V = Vidēvdāt.

Greek: Arkh.Eph. = Arkhaiologikē Ephēmeris (Athens, 1837-); GDI = Sammlung griechischer Dialektinschriften (Göttingen, 1884-1915).

Sanskrit: AB = Aitareya Brāhmaṇa, AV = Atharva Veda, JB = Jaiminiya Brāhmaṇa (Caland's selections), KKS = Kapiṣṭhala Kātha Saṃhitā, KS = Kāṭhaka Saṃhitā, MS = Maitrāyaṇī Saṃhitā (non vidi), RV = R̥g-Veda, SB = Śatapatha Brāhmaṇa, TS = Taittirīya Saṃhitā.

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THE SANSKRIT QUOTATIVE: A HISTORICAL AND COMPARATIVE STUDY¹

Hans Henrich Hock

In 1967, Kuiper proposed that the Sanskrit quotative, marked by *iti*, owes its origin to Dravidian influence. This claim is now generally accepted as an argument for early substratum influence of Dravidian on Sanskrit. Unfortunately, arguments for this hypothesis, as well as the counterargument in Hock 1975, are based on very cursory examinations of synchronic and diachronic evidence, both in Sanskrit (and other Indo-European languages) and in Dravidian (and other relevant non-Indo-European languages). This paper attempts to provide a fuller account of the history of the Sanskrit quotative, of its possible Indo-European antecedents, of the parallels in the earliest attested relevant non-Indo-European languages (Sumerian, Accadian, Elamite), and of the evidence provided by the non-Indo-European languages of South Asia (Dravidian, Munda, Tibeto-Burman). For some of these, especially for much of Dravidian, for Munda, and for Tibeto-Burman, the available evidence is quite limited, making it difficult to come to conclusions about prehistoric stages. Combined with the fact that all the other ancient Indo-European languages (Hittite, Homeric Greek, Latin, and Avestan), as well as the ancient Near Eastern languages, have quotative formations, this situation makes it difficult to maintain Dravidian influence for the structure and development of the Sanskrit quotative. While this conclusion may perhaps not be accepted by ardent advocates of early Dravidian influence on Sanskrit, it is hoped that the linguistic observations on which it is based, especially those for Sanskrit, will be useful and interesting to all linguists.

1: Ever since Kuiper (1967) introduced the construction into the discussion,² the Sanskrit quotative has figured prominently in papers arguing for early, pre-Rig-Vedic influence of Dravidian on Sanskrit. Cf. e.g. Emeneau 1969 and 1971 (both reprinted in Emeneau 1980, thus apparently still reflecting his views), as well as Hamp 1976 (without reference to Kuiper). The only dissenting voice seems to have been that of Hock 1975.

Unfortunately, only three of these papers engage in any fuller discussions of syntactic evidence,³ namely Kuiper 1967, Hock 1975, and Hamp 1976. Even these, however, do not offer a sufficiently detailed syntactic study of the Sanskrit quotative, of its possible Indo-European cognates, or of its possible non-Indo-European sources. True, Kuiper attempted to detail the different contexts in which the quotative particle *iti* is used in (Rig-Vedic) Sanskrit. However, his discussion was geared toward making comparisons with Iranian, Dravidian, and Munda, rather than toward providing a full account of the Sanskrit evidence. Moreover, his discussion of Munda and especially of Dravidian is excessively cursory. Hock's dissenting 1975 account of the Rig-Vedic evidence and of relevant constructions in outside Indo-European languages, as well as of non-Indo-European evidence, suffers from similar defects. Finally,

Hamp's paper was concerned mainly with the word order of iti, not with other aspects of its syntax.

It would be a mistake, however, to attribute the defects of these papers solely to the narrow, immediate concerns of their authors. Rather, the major reason lies in a veritable dearth of earlier work on the Sanskrit quotative and its potentially related constructions in other languages. And this dearth is attributable to the fact that until quite recently, quotatives did not create much interest among linguists. (Recent work, such as Kachru's (1979) study of the quotative in selected South Asian languages, must therefore be highly welcomed, even if it may not cover the whole chronological and geographical range.)

For Sanskrit we at least have the treatments of Delbrück (1888:529-34) and Speijer (1886:380-88). The latter provides a quite adequate picture of the post-Vedic, Classical period, to which we can now add the discussion in Kachru 1979. Delbrück's account of the Rig-Vedic situation likewise is good, but his description of the later Vedic situation is too cursory. Moreover, being chapters or paragraphs in much more general treatments of Sanskrit syntax, both accounts are quite condensed.

For two of the other early Indo-European languages, Hittite and Latin, the standard handbooks and dictionaries provide at least some useful information. But for languages like Avestan and Homeric Greek there seems to be no adequate coverage. Outside of Indo-European the situation is even more disparate. Thus, as Hamp (1976, n. 31) aptly observed, even Dravidian has not yet received adequate descriptive and comparative treatment. True, the literary languages of the South and their quotative constructions have been described fairly well. However, for the other, "tribal" languages it is much more difficult to find adequate descriptions. It is probably because of these lacunae that Masica (1976:189) claimed that the quotative is not found in the Central and Northern Dravidian languages. For other language families, we depend on stray remarks in the grammars of individual languages.

2: The major purpose of this paper is to initiate a fuller study of the Sanskrit quotative and of possibly related constructions in other languages. The major focus will be on the Sanskrit quotative and its development in observable history. This will be followed by a briefer survey of the evidence of other ancient Indo-European languages. Next I will attempt to characterize similar constructions in relevant non-Indo-European languages. Finally, I will draw on the evidence thus amassed to assess the hypothesis that the Sanskrit quotative reflects Dravidian influence. While this latter assessment may perhaps not sway many of the scholars committed to the 'Dravidian' hypothesis, I hope that the rest of the paper will be interesting and useful to all linguists, no matter what their stand on the Dravidian substratum issue.

3: One of the difficulties in dealing with a topic like 'the quotative' is one of definition: Presumably a quotative construction consists of direct discourse characterized by a special lexical or morphological marker. But must that marker be obligatory, or may it be optional? And if so, how "optional" may it be? Is it sufficient to have such marked constructions next to verbs of speaking, or should they be found more generally, such as with verbs of thinking, or without any overt governing verb? Etc., etc.

Rather than getting tangled up in a definitional morass, I will restrict myself to the minimal definition that there must be at least some degree of syntactic standardization, such that the marker is not just an occasional phenomenon, and that there be a relatively small number of possible variants for the marker. (Without such a minimal definition, we would probably be forced to find "quotatives" in all languages.)

Beyond that, I will try to characterize the various quotative constructions in terms of the following parameters. This, I feel, has the advantage of describing all the various quotatives within the same framework, thus making comparison easier. Moreover, it makes it easier to describe historical changes in given quotative constructions. At the same time, however, for many languages this method of description points out the appalling lack of detailed information available at this point. Clearly, all that can be done in such situations is to list those features for which I have information and to leave the blanks as challenges for further research.

3.1: The first parameter is that of relative "obligatoriness". In some cases (Sanskrit, Greek, Avestan), this parameter can be established statistically. In others, some impressionistic judgments are possible. For some, however, I am unable to give any indications.

3.2: The second parameter concerns the morphosyntax of the quotative: What are the lexical items/morphemes employed as a marker? If these are verbal, are they finite or non-finite? What is their ordering relative to direct discourse (QUOTE)? What is the position of QUOTE relative to the governing verb (SPEAK)? (Note that the term SPEAK will here be used in a technical sense, covering all the verbs under (i)-(v) below, if appropriate, i.e. if they govern QUOTE.)

3.3: The third parameter addresses more clearly syntactic (and pragmatic) questions, namely the kinds of verbs which govern the quotative construction, as well as the use of quotatives in other contexts, i.e. without SPEAK. In this discussion I have benefited greatly from the thorough analysis in Kachru 1979, although the nature of the data has made it necessary to make certain modifications. One of these is that I do not set up a separate category for verbs of non-oral communication (such as 'write'), since with the exception of the ancient Near Eastern languages, this category is not relevant at the early time depth of the Vedas, the Avestan texts, etc. The syntactic categories which I distinguish are the following:

(i) SAY: verbs of oral communication. (Examples of quotatives with 'write' etc. found in the ancient Near Eastern languages will be classified in this category.)

(ii) THINK: verbs of thinking which cross-linguistically may be construed like SAY, with a QUOTE of the thought, but also (like verbs of believing) with factive complementizers.

(iii) KNOW: verbs of cognition and believing which commonly are construed as factives.

(iv) HEAR: verbs of oral perception which may be used with the QUOTE of what is heard, but which more frequently are used in other constructions.

(v) SEE: verbs of visual perception which are semantically affiliated with HEAR (as perception verbs), but which a priori are not expected with QUOTE.

(vi) Ø, i.e. the absence of any SPEAK. In and by itself this category is not particularly remarkable, since languages without quotatives may have QUOTE without any overt SPEAK. What makes this category interesting is the fact that languages with quotatives seem to have a tendency toward specialized uses of this Ø-construction. Some of these are detailed below.

(vii) CAUSE: The use of a Ø-quotative to indicate that QUOTE states the cause or purpose for the action referred to in the "main clause", as in (1) below. The starting point for such a use probably lies in constructions of the type (2), where an originally intended reading (a) is reinterpretable as (b).

- (1) vaideśikāḥ asmi iti prcchāmi (Class. Skt.)⁴
'Since I am a stranger, I ask (you) ...'
(2) ... vārunaḥ akarot iti tū evā eṣaḥ etāt karoti (ŚB 5.4.3.2)
(a) "Varuṇa did it" (so thinking) he also does it'
(b) 'Because Varuṇa did it, (therefore) he also does it'

(viii) NAME: The use of the quotative construction to name or label persons or things.

(ix) QU: The quotative marker with question words, presumably a special development of (viii).

(x) EMPH: The use of the quotative for emphasizing an NP; probably a specialization of (viii).

(xi) ONOM: The use of the quotative marker with onomatopoeia.

(xii) OTHER: Other special developments in the use of the quotative.

I: SANSKRIT

⁴: The discussion of the Sanskrit quotative is complicated by the existence of competing constructions which at different times interact with the quotative. These competing constructions can be briefly characterized as follows, with illustrations from the Rig-Veda.

(a) A PARTICIPIAL structure of the type (3), in which the verb of the lower, QUOTE clause is participialized and, with its subject, is assigned case in the higher clause according to the following rules: The case is nominative if the subject of the lower clause is coreferential with the higher subject; elsewhere it is accusative (which in the passive, of course, turns into a nominative). In its full form, as just described, this construction is quite rare in the Rig-Veda. However, it is supported by parallel constructions with verbs of sensory perception, including HEAR which shows signs of being a SPEAK verb (cf. the fact that in (4) it is the message, not the action described, which is heard); cf. (4) and (5). Where the corresponding finite structure would have the copula, the participial construction always seems to delete the copula. (Note that also elsewhere 'be' is quite commonly deleted.) For synchronic SPEAK, this is the most common variant of the construction; cf. (6).

Although in many cases it is difficult to distinguish this construction from simple 'naming' structures (as in (7)), there are again parallel structures with sensory-perception verbs (whether functioning as SPEAK or not), as well as with vid- 'know' (cf. (8)), which show that the account proposed here must be on the right track. Because of the extensive structural differences between the participial quoting structures and the corresponding finite-verb quotes, they can only be considered indirect quote constructions.⁵

- (3) ... māṃsai nivācanāni śāmsan (10.113.10)
 SPEAK pple.
 'I may think (myself to be) speaking speeches'
 = 'I may think that I am making speeches'
- (4) ... tvām rtuthā yātāntam ... śṛṇōmi (5.32.12)
 pple. SPEAK⁶
 'I hear you requiting in due order' = 'I hear that you requite in due order' (Sim. ibid.11; with man- 'think', 10.73.10)
- (5) aruṇāḥ mā ... vṛkaḥ ... yāntam dadārśa (1.105.18)
 pple. 'saw'
 'a yellow wolf saw me going'
- (6) ... sayūjam haṃsām āhuḥ (10.124.9)
 SPEAK
 'they say a swan (to be/is) the friend ...'
- (7) utā kāvam nṛśadaḥ putrām āhuḥ (10.31.11)
 SPEAK
 'and they say K. (to be) N's son'/'they call K. N's son'
- (8) revāntam ... tvā śṛṇōmi (8.2.11)
 SPEAK
 'I hear you (to be) rich' = 'I hear that you are rich'
 (Sim., with vid- 'know', 1.10.10)

(b) A construction marked by the relative pronoun YA- or, more rarely, by the interrogative pronoun KA-; cf. (9)-(14). (The latter, KA--construction occurs freely with prch- 'ask'; but in that case, the structure is indistinguishable from direct discourse. Only structures with vid- 'know' and SAY are relevant to the present discussion.) Because of the interrogative-pronoun variants it is tempting to consider these to be indirect questions. Note however that structures like (12), which have no probable direct-question counterparts, cause difficulties. Moreover, the 'modal shift' so common in other Indo-European languages (from indicative to optative or subjunctive) is exceedingly rare; cf. Debrunner 1948. Example (13) is one of a few Rig-Vedic examples.⁷ Even so, it seems preferable not to include these structures among the direct discourse constructions.

- (9) prchāmi yātra bhūvanasya nābhiḥ (1.164.3)
 SPEAK YA-
 'I ask where the navel of the world is'
- (10) prā brūhi ... yāḥ idām kṛṇōti (10.87.8)
 SPEAK YA
 'Proclaim who does this'

- (11) vidmā ... te yāthā mānaḥ (1.170.3)
 'know' YA-
 'We know how your mind (is disposed)'
- (12) yāḥ vrtrāsya sīnam ... ābharīṣyat prā tām ... uyāca (2.30.2)
 YA- conditional SPEAK
 'she proclaimed (him) who would bring revenge on Vṛtra'
 (Direct discourse would have the future tense.)
- (14) kṛp īm veda ... kād vāyaḥ dadhe (8.33.7)
 'know' KA-
 'who knows of him what strength he puts on'

(c) Also UNMARKED quote structures may occasionally be instances of indirect discourse, such as (15) below, with shift in person (from first to third). However, as Debrunner 1948 correctly noted, these structures are exceedingly rare.⁷ Normally, these constructions exhibit no shift in person or mood and must therefore be considered UNMARKED DIRECT DISCOURSE, as in (16) and (17).

- (15) śunaḥśēpaḥ āhvāt ... ādityām āva enam ... vāruṇaḥ sasṛjyād
 SPEAK sg.3
 'Ś. called out to Ā. (that) V. should release him (= Ś)'
 (1.24.3)
- (16) ... tām ... sōmaḥ āha tāva ahām sakhyē nyōkaḥ (5.44.14)
 SPEAK
 'to him Soma said "I am at home in your friendship".'
- (17) utā enam āhuḥ ... pārā dadhikrā asarat ... (4.38.9)
 SPEAK
 'and they say of him "D. has gone off ..."'

It is these unmarked constructions, then, which most directly are relevant to the discussion of the Sanskrit quotative.

5: The Rīg-Veda

5.1: The Rīg-Vedic use of the quotative may be common, but not obligatory. Thus in book 10, the ratio between QUOTE marked by *iti* and unmarked QUOTE is 17 : 24.⁸ This ratio seems to hold good also for the rest of the Rīg-Veda. The actual numbers, however, may vary. Thus it seems that QUOTES, whether quotative or unmarked, occur much more frequently in the later portions of the Rīg-Veda. (Cf. 5.5 below.)

5.2: As elsewhere in Sanskrit, the quotative marker is *iti*, a word found in Sanskrit also in independent use, meaning 'thus'. In the Rīg-Veda it is difficult to find unambiguous instances of this independent use. All possible instances can also be given a quotative interpretation, as shown by the various translations by different scholars; cf. e.g. (18). However, the multiplicity of different readings suggests that none of the quotative interpretations is correct. (Such uncertain passages will be ignored in the subsequent discussion.⁹) In the Brāhmaṇas, however, clear examples can be found, such as (19) below.

- (18) īti cid hī tvā dhāna jāyantam (/) māde-made anumādanti viprāḥ /
 ōjīyab dhṛṣṇaḥ sthīrām ē tanuṣva(/) mē tvā dabhan yātudhānāḥ
 durēvaḥ // (10.124.4)
 'for thus the inspired ones jubilate to you, the victor of
 booty, in every intoxication. Even stronger, bold one, extend
 the bow; the ill-intentioned warlocks shall not outwit you.'
 (Reference of īti?-- Possibilities: (a) to verse 2: navanta
 ... mādeṣu 'shout in their intoxications' (cf. the māde-made
anumādanti of this verse; i.e. play on the word mad-); (b) to
 verse 3, addressed to the 'you' of this verse; (c) to the sec-
 ond half of this verse, which then would be the QUOTE of anu-
mādanti 'jubilate'; (d) no such reference, but simply the mean-
 ing 'thus')
- (19) īti āgre kṛsati ātha īti ātha īti ātha īti (ŚB 7.2.2.12)
 'he first plows thus/in this manner, then thus, then thus, then
 thus' (In the oral tradition of the text this was accompanied
 by appropriate gestures)

5.3: In terms of the relative position of īti, SPEAK, and QUOTE, we may distinguish the following sub-types: an 'īti-initial' construction, with both īti and SPEAK (in either order) preceding QUOTE, as in (20); a 'SPEAK-final' construction, with īti + SPEAK after QUOTE, as in (21); and an 'Embracing' construction, with SPEAK before QUOTE and īti after, as in (22).

- (20) īti bravīti vaktāṛi rārāṇaḥ / vāsoḥ vasutvā kārāvaḥ aneḥāḥ
 SPEAK (10.61.12)
 '(thus) says the giving speaker "Through the goodness of the
 good, the singers are guiltless"'
- (21) yāḥ indrāya sunāvāma īti āha (5.37.1)
 SPEAK
 'who says to Indra "We shall press"'
- (22) nākiḥ vaktṛ nā dāt īti (8.33.15)
 SPEAK
 'no one is about to say "He shall not give"'

The frequency of these constructions relative to each other and to the corresponding unmarked QUOTE constructions can be preliminarily illustrated by means of the following table. (Working with various indexes for īti, I believe I have been able to give a complete picture for the quotative. For the unmarked construction, my collection outside book 10 cannot claim to be exhaustive. However, the relationship between pre- and post-posed SPEAK should not be seriously affected by this.

	SPEAK + QUOTE	QUOTE + SPEAK
[+ <u>īti</u>]	<u>īti</u> -initial: 5	
	Embracing: 10	SPEAK-final: 22
	Total: 15	
[- <u>īti</u>]	52	4

To these figures must be added a few examples of SPEAK and/or īti inserted into QUOTE, as in (23).

- (23) idām udakām pibata īti abravītana (/) idām vā ghā pibatā muñja-
SPEAK
nejanam (1.161.8)
"drink this water" you said, " or drink this rinsewater"

In these structures we find two instances of SPEAK + QUOTE + īti + QUOTE, five of QUOTE + īti + SPEAK + QUOTE, and 3 of (īti-less) QUOTE + SPEAK + QUOTE. In addition, RV 10.34.12 has a complex structure with a SPEAK-like oath-taking expression surrounding QUOTE and then followed by SPEAK. (This construction will be ignored.)

5.4: QUOTE may also occur without SPEAK, with or without īti. Constructions marked by īti, such as (24)-(26), are easily located. On the other hand, for unmarked constructions the absence of any unambiguous clues makes the situation more difficult. I have tried to include only the most obvious examples in my count, such as (27)-(29).¹⁰ My figures for this construction therefore may be a little conservative.

With these caveats, the ratio between unmarked and marked SPEAK-less constructions can be given as 9 : 6.

- (24) prā vaya āpa vaya īti āsate taté (10.130.1)
'they sit at the spread-out (sacrifice) (saying/thinking)
'weave hither, weave thither''
- (25) nāmaḥ nāmaḥ īti urdhvāsah anakṣan (10.115.9)
'they have approached (with the words) "honor, honor"
(Sim. ibid.; but note that the first half of the verse has
QUOTE followed by īti ... SPEAK, and so does the preceding
verse. That is, we could be dealing with 'carried-over' SPEAK.)
- (26) tvāṣṭā duhitré vahatūm kṛpoti (/) īti idām vīśvam bhūvanam sām
eti (10.17.1)
'"Tvaṣṭr is arranging for the marriage of (his) daughter",
(hearing, thinking, saying this) this whole world assembles'
(There may be some question as to which verb of speaking should
be supplied here. The metrical break before īti, however, sug-
gests that the verb should be compatible with what follows.)
- (27) utā mātā mahiśām ānu avenad (/) amī tvā jahati putra devāḥ
'and the mother looked after the buffalo (saying) "My son,
these gods are leaving you' (4.18.3)
- (28) parāyatīm mātāram ānu acaṣṭa (/) nā nā ānu gāni ānu nū gamāni
'He looked after his departing mother (thinking) "I will not
not go (= I will not remain), I will go" (4.18.3)
- (29) īrāvati ... bhūtām ... ví astabhñāḥ rōdasī viṣṇo eté (7.99.3)
'You, Viṣṇu, stemmed apart these two worlds (with the words/
so that) "You shall be full of sustenance"'

Finally, as a matter of curiosity, it might be mentioned that there is one Rig-Vedic verse in which īti occurs multiply, in a fashion which makes it

difficult to be certain which instance of īti is "the" quotative particle; cf. (30). (The evidence of this verse is disregarded in the present discussion.)

- (30) īti vaī īti me mānaḥ (/) gām āśvam sanuyām īti / kuvīt somāśya
 "SPEAK"
apām īti (10.119.1)
 'Thus (?)', thus (?) indeed (is) my mind "I would win cow (and)
 horse" (thus (?)), "perhaps I have drunk soma" (thus (?))'

5.5: The data summarized in 5.3-4 can be interpreted in several ways. However, for the present discussion the relationship between the sub-types of the quotative and the manner in which they are embedded in the chronology of the Rig-Veda¹¹ are the most significant.

Chronologically, the three sub-types of the quotative are distributed in the Rig-Veda as follows:

	Early	Middle	Late
<u>īti</u> -initial	3		2
SPEAK-final	5	6	11
Embracing	2	2	6

At first sight, the most striking phenomenon might be the overall increase of quotative attestations in the Late period. However, it is questionable whether that increase is meaningful. For QUOTES in general, whether marked by īti or not, seem to occur more frequently in the late portions of the Rig-Veda. Thus my (incomplete) count for corresponding īti-less constructions jumps from 22 in the Early and Middle portion to 34 in the Late Rig-Veda. The ratio between marked and unmarked constructions, however, seems to remain fairly constant at all stages of the Rig-Veda. Thus the ratio in book 10, a collection mainly of Late hymns, is roughly the same as for all of the Rig-Veda:

	marked	unmarked	ratio
Book 10	17	: 24	1 : 1.4
All of RV	37	: 56	1 : 1.5

Significant differences can however be observed if the relations between the three sub-types of the quotative are considered:

(a) The īti-initial construction definitely is in the minority compared to those in which īti follows QUOTE (i.e., the SPEAK-final, Embracing, and SPEAK-less constructions). The total ratio is one of 5 : 38, disregarding structures with īti inserted into QUOTE. Moreover, in later Sanskrit, īti-initial constructions become exceedingly rare.

(b) The SPEAK-final type is considerably more vigorous. In fact, the figures above suggest a 100% increase in its use from the Early¹² and Middle¹³ periods to the Late Rig-Veda.¹⁴ However, given the noted general increase of QUOTES in the Late portions, it is difficult to judge whether that increase is meaningful.

(c) The case is quite different for the Embracing construction. Though the numbers are small, there does seem to be a significant increase in the Late Rig-Veda, from twice each in the two preceding stages¹⁵ to six times in the Late period.¹⁶ Moreover, as will be seen in subsequent sections, this increase marks only the beginning of what ultimately turns out to be the most productive quotative pattern.

Of these three patterns the most likely archaism is type (a). The greater popularity of SPEAK-final (b) might perhaps suggest an innovation. However, it can also be explained in terms of a polarization with the unmarked construction: Since the latter clearly prefers SPEAK before QUOTE (by a ratio of 52 : 4), the īti-quotative comes to prefer the mirror-image order QUOTE + SPEAK (by a ratio of 22 : 5, disregarding the embracing construction). Given this alternative explanation, it is possible that both (a) and (b) are inherited. Because of its marginal use (with a total of only 5 attestations for all of the Rig-Veda, the inserted īti + SPEAK pattern (cf. 5.3 above) probably likewise is an archaism. (On the other hand, the two instances of SPEAK + QUOTE + īti may be considered influenced by, or comparable to, the Embracing construction.)

The most clearly innovated pattern is the Embracing type (c). Moreover, in light of the facts just noted, this construction can easily be explained as a Rig-Vedic innovation, namely as a compromise between the order SPEAK + QUOTE of the preferred unmarked construction and the order QUOTE + īti of the (heretofore) preferred quotative. This process may have been aided by the fact that in SPEAK-less QUOTE constructions, īti always follows QUOTE. If this construction is accounted for as resulting from the deletion of SPEAK, this latter order is not surprising, since as we have noted, the type QUOTE + īti + SPEAK was more productive than the īti-initial construction. After deletion, however, a construction QUOTE + īti can be reinterpreted as having the syntactic structure (31), rather than (32). That is, īti changes from being a member of the SPEAK clause to being one of QUOTE. As a consequence it would now no longer be necessary for īti and SPEAK to be clause mates.

(31) [[QUOTE īti] (SPEAK)] (innovated construction)

(32) [[QUOTE] īti (SPEAK)] (earlier construction)

5.6: There is evidence that such a syntactic reassignment of īti has in fact taken place: In the īti-initial and SPEAK-final constructions, īti could act as the initial element of the clause containing SPEAK. For the īti-initial type this is shown by the line- and clause-initial position of īti in (20) above (similarly in 10.95.18 and, with preceding "extrasentential" vocative, in 10.97.4). Notice that line breaks ordinarily coincide with clause boundaries. For the SPEAK-final type, note line- and clause-initial īti in (26) above and (33) below, as well as (34)-(36) which show īti as the first element of clause-initial strings.¹⁷

(33) tvāṃ stoṣāma ... // īti tvā agne ... řsayāḥ avocan (10.115.8-9)
SPEAK

'We shall praise you ...' (thus) the řṣis said to you, Agni'

(34) ... īti ca brāvat (6.54.2)
SPEAK

'and QUOTE he shall say'

- (35) ... íti céd avocan (10.109.3)

SPEAK

'if QUOTE they said'

- (36) ... íti yád vādanti (10.37.10)

SPEAK

'when QUOTE they say'

On the other hand, excepting two (ambiguous) instances where íti occurs in the middle of a line/clause,¹⁸ all other (i.e. 8) cases of the Embracing construction have íti clause- or line-finally, as in (37).

- (37) yé īm āhub surabhīḥ nīḥ hara íti / (1.162.12)

SPEAK

'who say of it (the battle horse) "(it is) good-smelling, take it away"'

5.7: The syntactic/pragmatic contexts in which the quotative construction (and QUOTE in general) can be used in the Rīg-Veda are as follows:¹⁹

(a) With SAY (cf. e.g. (20), and (33)-(37)). This includes not only verbs meaning 'say, speak, tell', but also nu- 'shout' (Ø, 8.96.14), rap- 'whisper' (Ø, 10.10.11, 10.61.11), is- 'order' (Ø, 8.96.14), nādh- 'implore' (íti, 1.109.3), śikṣ- 'instruct' (Ø, 10.95.17), as well as ghoṣa asti 'there was a noise/shouting' (íti, 10.33.1). For simple 'say, speak', there is also a rival construction with (quasi-)participialization, of the type exemplified in (6) and (7) above.

(b) A special sub-type of SAY is prach- 'ask': Though permitting QUOTE (as in 2.12.5, 8.77.1 with íti and 1.164.6, 8.45.4, etc. with Ø), this verb quite commonly occurs in the 'indirect-question' construction discussed in section 4 above; cf. e.g. example (9).

(c) With THINK; cf. (38) and (39), the latter with a noun of thinking. Other examples occur at 10.146.4 (íti) and 10.34.5 (Ø, a-dhī- 'reflect').

- (38) yád ... nā marai íti mānyase (8.93.5)

SPEAK

'when you think "I will not die"'

- (39) utá syā naḥ ... matīḥ (/) āditīḥ ūtyā ā gamat

"SPEAK"

'and this (is) our thought "May Aditi come with succor"'

With THINK, however, the more commonly found pattern is the participial construction discussed in section 4; cf. e.g. example (3).

(d) With HEAR: I have found only one example of this structure, without íti, namely (40) below. Elsewhere, HEAR is found in the participial construction as in (4) and (8).

- (40) utá tvām ... śruṇ (/) yás te vāṣṭi vavákṣi tát (8.45.6)

SPEAK

'and hear/listen you: "If someone wants something from you, that you order ..."'

(e) On the other hand, with KNOW and SEE, no QUOTE constructions are found. For KNOW, there are a few examples of the participial construction (as in 1.10.10); but the normal pattern is the 'indirect-question' type exemplified in (11), (12), (14). For SEE, I have found only participial constructions, as in (5).

5.8: As the earlier discussion has shown (cf. also examples (24)-(29)), there are quite a number of SPEAK-less, or Ø-examples, both with and without īti. Most of these are of no great interest, except to the extent that they may have helped bring about the developments sketched in 5.5.

There is however one example which deserves closer examination. This is example (26) which Kuiper (1967) considered to be an instance of the CAUSE construction of later Sanskrit (for which cf. section 3, examples (1) and (2)). While this is no doubt a possible interpretation, it is by no means the only possible one. For as the glosses to (26) show, there are a number of other possible readings. Similar ambiguities can moreover be occasionally found with īti-less constructions, as in (29). However, none of these constructions provides incontrovertible evidence for the CAUSE pattern in the Rīg-Veda. At best, they show the ambiguities from which the later CAUSE type may have arisen by reinterpretation.

5.9: Of greater interest are the following constructions which, as (46) shows, may be found with Ø-SPEAK. These constructions might perhaps indicate the existence of the NAME construction. This would especially be the case in (46).

- (41) tām ānuṣ suprajāḥ īti (9.114.1)
 'him' SPEAK sg.N/V
 'they say of him "(He is) rich in progeny"
 OR: 'they say to him "(O you,) rich in progeny"
 OR: 'they call him "rich in progeny"'
- (42) yāp enam ādīdeṣati (/) karambhād īti pūṣāṇam (6.56.1)
 'him' SPEAK sg.N/V
 'who says of him, of Pūṣan "(He is) a porridge-eater"
 OR: 'who says to him, Pūṣan "(O you,) porridge-eater"
 OR: 'who calls him, Pūṣan, "porridge-eater"'
- (43) utā ghā nēmaḥ āstutaḥ (/) pūmān īti bruve paṇīḥ (5.16.8)
 sg.N SPEAK
 'and many an unpraised niggard is talked about "(He is) a man"
 OR: 'and many an unpraised niggard is called "a man"'
- (44) ... sānaśrutam (/) īndraḥ īti bravītana (8.92.2)
 sg.A sg.N SPEAK
 'say of the one of ancient fame "(He is) Indra"
 OR: 'call the one of ancient fame "Indra"'
- (45) yāp mā mōgham yāstudhāna īti āha (7.104.15; sim. ibid.16)
 'me' sg.V SPEAK
 'who falsely says to me "O warlock"'
- (46) īndo īndraḥ īti kṣara (9.6.2)
 'O juice, flow (thinking) "(I am) Indra"
 OR: 'O juice, flow (as/called) "Indra"'

Constructions like these are used frequently in the later language for the purpose of naming things or persons. A characteristic of these later constructions is the fact that they look like the quasi-participial naming constructions discussed in section 4 (and illustrated in example (7)), in that the person or thing named appears in the accusative case (except in the passive, where the nominative is used instead). The name, however, is introduced in the nominative case, as a quasi-QUOTE marked by *iti*.

There are however several difficulties with the interpretation of the Rig-Vedic examples. First of all, the case marking of the quoted NP is ambiguous in (41)-(42): Both nouns could either be nominative or vocative, the latter being a case not permitted in the naming construction of the later language. Moreover, (45) offers a clear case of a vocative. At the same time, however, (43)/(44) show that also nominatives can occur in this context.

Secondly, contextually parallel structures make it possible to interpret the above examples as genuine QUOTES. Thus, example (37) contains a plain nominative as the first "clause" of its QUOTE. And the context makes it clear that this is not a naming construction, but a construction with omitted copula (surabhiḥ (asti) '(it is) good-smelling'). Moreover, this example, as well as many others (such as (16) and (17)), shows that the accusative preceding such a reduced clause and coreferential with its subject need not be a person 'named' by means of the QUOTE, but can simply be the person to whom or about whom the QUOTE is uttered.-- For (45) there is the parallel structure (47), found in the same hymn and in the same verse as the second occurrence of (45). And this structure can be interpreted only as a genuine QUOTE. -- For (46), there is the parallel (48), in which a copula-less direct-quote interpretation seems to be the only possible analysis. Given this evidence, then, the NAME interpretation is not the only possible analysis for (41)-(46); but all the readings given in the glosses are a priori equally possible. We thus have no certain evidence for the NAME construction in the Rig-Veda.

- (47) yāḥ mā āyātum yātudhāna īti āha (/) yāḥ vā rakṣāḥ śūciḥ asmi īti āha
 'me' SPEAK SPEAK
 'who says to me, the one not being a warlock, "O warlock", or who,
 being a rakṣas, says "I am pure"...' (7.104.16)
- (48) induh īndrah īti bruvān (9.63.9)
 SPEAK
 'saying "The juice (is) Indra"'

As a matter of fact, it may well be argued that the NAME construction secondarily resulted from a reinterpretation of structures like (41)-(46) as somehow akin to the participial naming construction. What may have helped in this development is the quasi-passive type (43): Because of the passive-like nature of *bruve* 'is called/talked to, about', the quoted NP would have to appear in the nominative both in an *iti*-less genuine QUOTE construction and in the participial construction; cf. (49). The resulting ambiguity could then be extended to the *iti*-quotative, as in (50). (Both (49) and (50) are unattested as such; but structures of this sort would be possible in the Rig-Veda.)

- (49) pañih pūmān bruve
 sg.N sg.N SPEAK
 (a) 'the niggard is talked about "(He is) a man"
 (b) 'the niggard is called a man'
- (50) pañih pūmān īti bruve
 sg.N sg.N SPEAK
 (a) 'the niggard is talked about "(He is) a man"
 (b) X

5.10: The evidence of the Rig-Veda, the earliest stage of Sanskrit, then can be summarized as follows.

Rig-Vedic Sanskrit had a quotative structure marked by īti 'thus' which coexisted with an īti-less construction and thus was only optional. Both constructions could occur with SAY (including prach- 'ask', which however preferred other, indirect constructions), as well as THINK and HEAR. (The latter two however show strong competition from indirect constructions.) In addition, both the quotative and the īti-less construction can occur without any overt SPEAK, in which case a CAUSE reading is occasionally possible for either construction. There is however no evidence for this being an established use of the quotative. There are also ambiguous structures which indicate the potential for reinterpretations leading to NAME-quotatives. Again, however, there is no unambiguous evidence that such constructions have already arisen. (In addition, there is as yet no evidence for the use of the quotative with KNOW and SEE which, instead, use indirect constructions.)

The Rig-Veda does however offer evidence for the development of a new constructional type, in so far as the morphosyntax of the quotative is concerned. Where early on, Rig-Vedic Sanskrit seems to have had three major variants of the quotative, one īti-initial, a second SPEAK-final, and a third with īti + SPEAK inserted into QUOTE, a new, Embracing construction is seen to be coming in, in which SPEAK precedes and īti follows the QUOTE.

6: The Atharva-Veda²⁰

The Atharvanic quotative shows a very marked development vis-à-vis even the late Rig-Vedic stage. This manifests itself in all areas: in the extent to which the quotative has become obligatory, in the morphosyntax of the construction, and in the syntactic/pragmatic uses of the structure.

6.1: In terms of frequency, an examination of books 1-8 shows a ratio of 12 : 5 between SPEAK + QUOTE structures with and without īti. If SPEAK-less constructions are included, the ratio is 14 : 5. (In book 10 of the Rig-Veda the ratio was 17 : 24 !) Moreover, while the verse sections of the Atharva-Veda contain about 15 examples of SPEAK-less īti-constructions, I have found no comparable constructions without īti. In short, then, the marked quotative is well on its way toward becoming quasi-obligatory.

6.2: As far as its morphosyntax is concerned, the quotative no longer seems to be attested in its īti-initial variety. And the ratio between SPEAK-final and Embracing quotatives shows a marked development toward predominance of the latter construction, as can be seen from a comparison of Late Rig-Vedic, Atharva Verse, and Atharva Prose. (Note that it is generally acknowledged that the Prose sections are relatively late in the Atharva-Veda. In the Prose sections I ignore repetitions of the same collocation within a given "hymn".)

	Late RV	AV Verse	AV Prose
QUOTE + <u>īti</u> + SPEAK	11	13	5
SPEAK + QUOTE + <u>īti</u>	6	12	8

6.3: Perhaps the most striking and interesting changes can be observed in the syntax/pragmatics of the quotative:

(a) Impressionistically, it seems that indirect constructions are very much on the wane, for all relevant verbs, except SEE which does not show any quotative constructions as yet. Still, occasional indirect constructions may be found, such as (51).

- (51) vidmā vai ... yātaḥ ... jāyase (AV 7.76.5)
 SPEAK YA
 'We know whence you are born'

(b) In addition to a greater incidence of quotatives with THINK, we now also observe quotative constructions with HEAR (while in the Rig-Veda we only found one example of an īti-less QUOTE), as well as with vid- 'KNOW', a category not yet taking QUOTE in the Rig-Veda; cf. (52) and (53). This latter extension can be taken as resulting from the reinterpretation of THINK as 'believe (to be true)', hence 'KNOW (to be true)'.

- (52) ... saptaḡrdhrāḥ īti śuśrumā vayām (AV 8.9.18)
 SPEAK
 "... (They are) seven-vultured" (so) we have heard'
- (53) bhūmih īti tvām abhiprāmanvate jānāḥ (/)
 SPEAK
nīrṛtiḥ īti tvā ahām pāri sāra vātaḥ (AV 6.84.1)
 SPEAK
 'People think of you (as) "earth", I know you completely (as) "Nirṛti" (= "perdition")'

(c) As the (translation of the) last example shows, there is good reason to believe that at this stage a NAME variant of the quotative has developed. This is indicated first of all by a larger number of relevant constructions than were found in the Rig-Veda. In the Rig-Veda, constructions which might possibly qualify as NAME quotatives amount to only 6 out of a total of 46 īti-constructions; i.e. the ratio is about 1 : 8. In Atharva-Veda verse, 11 out of 40 īti-quotatives are interpretable as NAME constructions; i.e. the ratio is about 1 : 4. More important, however, is the evidence of (54), where nāmadhēyam 'name' is explicitly specified, and of (56) where an īti-less NP in a parallel construction strongly suggests that īti is inserted without recourse to a (deleted) SPEAK, but simply as a naming device. Note that in a Rig-Vedic passage comparable to (54), no īti is found; cf. (55).

- (54) sāmvasavaḥ īti vaḥ nāmadhēyam (AV 7.109.6)
 "Sāmvasus" (is) your name'
- (55) ghr̥tāsya nāma ... yād āsti (/) jihvā devānam ... (RV 4.58.1)
 'which is the name of ghee: "tongue of the gods ..."'

- (56) udanvāti dyaúh avamā (/) pīlūmati iti madhyamā /
 tṛtīyā ha pradyaúh iti (AV 18.2.48)
 'watery is the lowest heaven, "full of pīlus" the middle one,
 the third (is) the "foreheaven" ...'

This new NAME construction was to acquire a considerable degree of popularity in the later language, including in grammatical literature. Its attractiveness seems to have lain in the fact that it made it possible to "integrate" lexical items into a syntactic context in their citation (nominative or stem) form, without further adjusting that form in accordance with its grammatical status within the sentence. (For the probable origin of this construction, cf. section 5.9 above.)

6.4: In addition, there is evidence that the Atharva-Veda is in the process of developing a CAUSE variety of the quotative, viz. a use of the quotative to indicate purpose. Disregarding infinitival constructions, the Rig-Vedic device for marking purpose clauses was a structure with yāthā 'so that' + subjunctive, as in (57). Similar constructions continue in the Atharva-Veda; cf. (58). Beside these, however, we find constructions like (59) and (60), without yāthā, but with subjunctive, and with the particle *iti*.

- (57) *grhāṇ gacha gṛhapātnī yāthā āśaḥ* (RV 10.85.26)
subj.
'go home so that you be lady of the house'
- (58) *huvé devīm āditim ... sajātānām madhyamesthā yāthā āsāni*
subj.
'I invoke divine Aditi so that I be the midmost of my fellows'
(AV 3.8.2)
- (59) *sārvāḥ sāmahvi śasadhīḥ* (/) *ītaḥ naḥ pāraya[n]*²¹ *īti* (AV 4.17.2)
subj.
'I have called together all the herbs (thinking) "May they save us from this"'
- OR: 'I have called together all the herbs so that they may save us from this'
- (60) *kāḥ asya bāhū sāmabharad* (/) *vīryam karāvād īti* (AV 10.2.5)
subj., accented
'who brought his arms together so that (?) he do something heroic' (Sim. *ibid.* 17, 6.128.1)

What is especially interesting is that in a number of examples (cf. (60) vs. (59)), the verb of such iti + subjunctive clauses is accented, indicating that the clause functions as a dependent clause, just as does a yathā construction. (Elsewhere, however, main-clause verbs within a QUOTE normally are unaccented.)

Moreover, there is other evidence suggesting an (incipient) equivalence between yathā clause and iti construction. One consists of their apparent interchangeability in (61). The other in the occurrence of an apparent blend between the two constructions; cf. (62).

- (61) asaú me smaratād íti (/) priyāḥ me smaratād íti /
devāḥ prā hiṣuta smarām (/) asaú mām ānu śocatu //
yāthā mama smārād asaú (/) nā āmuṣya ahām ... /
devāḥ prā hiṣuta smarām (/) ... (AV 6.130.2-3)
 'so that yonder (man) love me, so that the dear one love me,
 O gods, send love, may yonder (man) burn after me.
 'so that yonder (man) love me, not I him ..., O gods ...'
- (62) tvaṣṭā tām asyāḥ ā badhnād yāthā putrām janād íti (AV 6.81.3)
 subj.
 'Tvaṣṭṛ shall bind that on her so that she may give birth to
 a son'

In terms of internal Sanskrit evidence, this new construction can be explained as the result of reinterpretation of potentially ambiguous constructions such as Rig-Vedic, íti-less (26) and its íti-quotative counterparts.

6.5: Other innovations include the first instance of a pattern which becomes prominent in the Vedic Prose of the later Saṃhitās and the Brāhmaṇas and which might be referred to as 'Ritual Quotative', i.e. a sacred formula quoted during a ritual act and marked by íti, usually without an accompanying SPEAK; cf. (63).

- (63) ... piśācān sārvaṇ darśaya (/) íti tvā rabhe oṣadhe (AV 4.20.6)
 "..." make (me) see all the Piśācas" (with these words) I take
 you, O herb'

Another fore-runner of a construction quite common in Vedic Prose, but not found elsewhere in the early language, is that given in (64), in a passage from Atharvanic Prose. This is the use of the quotative with FEAR.

- (64) tāsyāḥ jātāyāḥ sārvaṇ abibhed iyām evā idām bhavisyati íti
 'fear'
 'of her, when she was born, everything was afraid (thinking)
 "this one will indeed become this world"' (AV 8.10.1)

6.6: The most striking innovation of the Atharva-Veda, however, is the use of quotative íti with ONOMATOPOEIA, cf. (65), (66), and (67).

- (65) prthivyām te nīpēcanam bahiḥ te astu bāl íti (AV 1.3.1-9; re-
 ONOM. frain)
 'on the earth be your outpouring, outside of you, "splash"'
- (66) ajāna kṛvāntaḥ śītām (/) vṛṣṇa ukṣantu bāl íti (AV 18.2.22)
 'making you cool with the goat, let them sprinkle you with rain,
 "splash"'
- (67) bhūg iti abhīgataḥ (/) śāl iti apākrāntaḥ (/) phāl iti abhīṣṭhitaḥ
 'bounce', he has come; "whist", it is gone; "bang", it has trodden²² (AV 20.135.1)

For Kuiper (1967) and Emeneau (1969), these structures were clearly due to Dravidian influence. Kuiper, to be sure, did note something of a Rig-Vedic ante-

cedent, the expression bā itthā (= bā itthā) 'indeed, truly, etc.', which contains an interjection vaguely reminiscent of the above bā, bhū etc., plus a cognate of iti; cf. e.g. (68) below. Now, in many of its attestations, itthā may be looked upon as a simple emphasizer. Occasionally, however, it is used in the meaning 'thus' and may, like iti, be used even with SPEAK; cf. (69)-(70).

Kuiper does not pursue this matter. As it turns out, however, Avestan has evidence for similar uses of its cognate iθā (YAv. iōa/iθa), as well as for the quotative use of that particle; cf. 12.5-6 below. While this does not prove that the itthā of bā itthā was quotative and thus a more or less direct ancestor for the iti of (65)-(67) above, the parallel is tantalizing. Still, given that RV bā is not an onomatopoeic interjection, the way of caution would advise against such a direct connection.

- (67) bā itthā mahimā vām ... pāniṣṭhab ... (RV 6.59.2)
 'truly, your greatness is praised most ...'
 OR: 'thus indeed (it is): Your greatness is praised most' (?)
 (Sim. 1.141.1, 5.67.1, 5.84.1)
- (68) satyām itthā vṛṣā id asi (RV 8.33.10)
 'truly thus (it is): You are the bull'
- (69) apāḥ indraḥ ... turāṣāt / itthā sṛjanāḥ ... ārtham ... viviṣuḥ
 'Indra, conquering the might (released) the waters; thus released, they pursued their duty' (RV 6.32.5)
- (70) ... bhāva mṛīkā / itthā gṛṇāntaḥ ... syāma ... goṣātamāḥ
 SPEAK
 "' ... Be merciful," (thus) praising (you) may we be the most cow-winning'
 (RV 6.33.5; sim., with vad- 'speak', 6.18.5)

The normal pattern for onomatopoeia in the Rig-Veda, disregarding derived nominals, seems to have consisted of a choice of the following:

(a) The onomatopoeia is turned into a verb-stem and then inflected as a verb, such as probably in hēṣati 'whinneys', próthati 'snorts', as well as in participial jājhjhatī (RV 5.52.6) 'laughing' or 'hissing', jāñjatī (RV 1.168.7) 'blazing, flaring (of fire)'.
 (b) The onomatopoeia is extended by the verb kr- 'do, make', as in ciścā kr̥poti 'makes a whizzing sound (of an arrow)' (RV 6.75.5), hín-kr- 'make the sound hín (of a cow)' (RV 1.164.27, 28), kikirā-kr- 'scratch' (RV 6.53.7, 8), akkhkhālī-kṛtyā 'jubilating' (RV 7.103.3); cf. also phāt karikrati 'they keep making "crash"' (AV 4.18.3).

(c) The onomatopoeia is extended by bhū- 'be, become', as in alalā-bhā-vantī 'rustling (of water)' (RV 4.18.6), jañjanā-bhāvan 'blazing, flaring (of fire)' (RV 8.43.8).

What is common to all of these processes is an attempt not to use an onomatopoeic expression by itself, but to "integrate" such words into the ordinary vocabulary--and the syntax--of the language by turning them into a recognizable--and syntactically usable--category, namely into verbs. (In fact, the coexistence of jāñjatī and jañjanā-bhāvan suggests that for 'spur-of-the-moment'

expressions, any of these processes could equally well be used, i.e. that they all were "equal" in implementing a conspiracy against using plain, unextended onomatopoeia.)

Given this background, it is perhaps not surprising that once the NAME construction with *īti* had been introduced into the language, as a device to "integrate" names etc. into the rest of the sentence without further syntactic adjustment (cf. 6.3 above), it could be used as an additional device for "integrating" onomatopoeia into the rest of the sentence, coexisting with the other devices throughout the remainder of the (Vedic) language.

That there may have been a time lag between the development of the NAME construction and the special ONOM use of the quotative is suggested by the following considerations. The NAME construction is found throughout all the various chronological layers of the Atharva-Veda. ONOM, however, appears only in contexts which look like late additions: The hymn in which (66) occurs was not included in the more conservative Paippalada recension of the Atharva-Veda. And though some of the material of the hymn from which (65) is taken is found in the Paippalada, the quoted passage itself is not, suggesting that it is a later addition to a pre-existing hymn. As for (67), it occurs in the very problematic 'Kuntāpa hymns' which had not yet been included in the Atharva-Veda at the time that the grammatical analysis reflected in the pada-pāṭha was undertaken. Bloomfield (1899:100-1) very aptly describes the changes in the ritual which must have led to the late inclusion of these hymns into the Vedas. At the same time, however, variants of (65) and (66) appear in the latest Vedic hymn collections--in KS 13.9, TS 3.3.10.2--, and a variant of (67) is found in the non-canonical and frequently quite late Rig-Vedic 'khi-las' (5.18). It is therefore probable that the construction had come into existence by the end of the Vedic-Poetry period, and before the Vedic-Prose stage which will be discussed next.

6.7: The evidence of the Atharva-Veda thus suggests the following developments: The quotative is well on its way to becoming quasi-obligatory, both compared to unmarked QUOTE and to the indirect constructions. Of its three major Rig-Vedic variants, the *īti*-initial structure is too rare to even be attested, and the Embracing pattern is well on its way toward predominating over the SPEAK-final one. HEAR and KNOW are now attested with quotatives. A NAME variant of the quotative has developed which in turn may have furnished the basis for an ONOM construction. In addition, a purpose variant of the CAUSE construction, a 'Ritual Quotative', and the use of the quotative with FEAR can be observed to be developing.

7: Vedic Prose

The language of the prose texts of the post-Atharvānic Saṃhitās, as well as of the Brāhmaṇas and Aranyakas, shows the quotative construction almost fully developed to its state in the Classical language.

7.1: Compared to other, indirect or direct quote constructions, the quotative is now virtually de rigueur. Thus in two samples from the Śatapatha-Brāhmaṇa, selected because of their different subject matter and style,²³ *īti* constructions outnumber other constructions by 31 : 1 and 27 : 2 respectively. (The figures are even more impressive if the (mostly SPEAK-less) quotes from

the Vājasaneyī-Saṃhitā and the explanatory restatements and paraphrases are included: 55 : 1 and 31 : 2, respectively.)

This is not to say, however, that īti-less QUOTE and indirect constructions are entirely wanting. Thus in the two samples there are one example of a participial construction with KNOW and two examples of 'indirect questions' with THINK, respectively. Elsewhere, occasional examples of īti-less QUOTE can be found, as in (71). (Cf. also 7.4 below.) In general, it can be stated that SAY may occasionally be used with the participial construction (cf. e.g. (75), inside QUOTE) and unmarked QUOTE; THINK and KNOW with the participial construction and 'indirect questions'; and SAY may also occur with 'indirect questions' where genuine questions are being asked, as in (72).

- (71) yādi it tú anyé vādanti kās tát saṃdhām upeyāt (ŚB 2.4.3.10)
SPEAK
'if now others say "who would incur this combination (of mistakes)?" ...'
- (72) brūhi yātaḥ khānema (ŚB 3.3.3.11)
SPEAK
'say where we should dig'

This competition between different constructions may perhaps be responsible for the occasional appearance of syntactic blends, such as (73) with 'indirect-discourse' marker yāthā 'that' and quotative īti. Moreover, it may account for the fact that where SPEAK interrupts a QUOTE, īti may occasionally be placed only at the end of one of the QUOTE fragments (cf. (74)), although the normal pattern has īti at the end of all fragments (cf. (75)).

- (73) sāp ṛtām abravīt yāthā sārvasu evā samāvad vāsāni īti (MS 2.2.7)
SPEAK
'he swore an oath that "I will live with all of them equally"'
- (74) idām ō hí āhuḥ rākṣāṃsi yoṣitam ānusakante tát utā rākṣāṃsi
SPEAK
evā rétaḥ ādadhati īti (ŚB 3.2.1.40)²⁴
'for "here (on earth)," they say, "the rakṣases pursue young women and then the rakṣases put their seed in".'
- (75) ātra u sāp kāmāḥ ūpataḥ īti ha sma āha mēhitthiḥ yām carakāḥ
SPEAK
prajāpatiḥ paśaú āhūh īti (ŚB 6.2.2.10)
SPEAK
'"Therein that wish was obtained," (so) Mēhitthi once said, "which the carakas say (to be) in the Prajapati-victim".'

As noted earlier, Vedic Prose also offers examples of non-quotative īti meaning 'thus', cf. (19) above. (In the first of the two Śatapatha-Brahmaṇa samples referred to earlier, there happen to be five such examples. Overall, however, this use is found much more rarely.)

7.2: The tendency, observed in the Atharva-Veda, toward predominance of the Embracing construction over against the SPEAK-final variety of the quotative can be observed even more fully in Vedic prose. In the two Śatapatha-Brahmaṇa samples studied in detail, the ratios between the two constructions

are 19 : 1 and 18 : 5, respectively.)

7.3: An innovation in the area of morphosyntax, occasioned no doubt by the increasing number of uses for the quotative, is the fact that at this stage of the language we find the first examples with 'nesting' of īti-quotatives within īti-quotatives, as in (76).

- (76) hiranyāyī īti vai abhyūktā īti (SB 6.3.1.42)
'(saying) "it is said (to be) 'golden'."'

There is, however, as yet no evidence for a possible 'pile-up' of ītis at the end of a QUOTE, as it can be found in the later, Classical language. Rather, such a 'pile-up' seems to be actively avoided, as in (77), where instead of expected ONOM-īti plus QUOTE-final īti, only a single īti is found. (In the Classical language, this would come out as (78), with double īti.)

- (77) ... tām juhuyād dēvāṃso yāsmāi tvā īde tāt satyām upariprutā
bhaṅgēna hatāḥ asau phaṭ īti (SB 4.1.1.26)
'he should sacrifice with that (saying) "O divine sprig, for what I pray to you (let) that (be) true; (let) this man (be) struck by destruction-from-above, 'crash'."'
(78) ... asau phaṭ īti īti

7.4: The area of syntax/pragmatics likewise exhibits innovations in the use of the quotative.

(a) One of these is the fact that the quotative may now be used also with SEE; cf. (79). This innovation no doubt is attributable to generalization from HEAR to other verbs of sensory perception.

- (79) sā ha etād evā dadarśa anaśanātayā vai me prajāḥ pārābhavanti īti
'see' (SB 2.5.1.3)
'he then saw "These creations of mine are perishing of hunger"'

(b) The NAME construction now appears in a new function, namely that of characterizing technical terms (80) and of serving as italics, to characterize quoted forms in discussions of a technical, philological nature; cf. (81).

- (80) tē vai etē pāripaśavye īti śhuti (ŚB 3.8.1.16)
'these two libations are "paripaśavyas"'
(81) vāk īti ēkam akṣāram akṣāram īti tryākṣaram (ŚB 6.3.1.43)
'vāk(is) one syllable, akṣāram(is) trisyllabic'

(c) A further extension of the NAME construction, a structure marking EMPHASIS, has developed by this time; cf. (82). (The accusative case marking in (82) might perhaps suggest that this is unrelated to the NAME quotatives. However, as (83) shows, also the NAME construction occasionally may retain the accusative of the unmarked construction, rather than switching it into the nominative.)

- (82) dvaú trfn íti evá pitāmāhān somapān vindanti (ŚB 5.4.5.4)
 du.A pl.A pl.A
 'they find only two or three (not more) soma-drinking fore-
 fathers'
- (83) tātaḥ āsurāḥ rauhipām íti agnīm cikyire (ŚB 2.1.2.13)
 sg.A sg.A
 'then the Asuras built themselves the "rauhipa" Agni/fire'

(d) the 'Ritual Quotative', the beginnings of which were noted in the Atharva-Veda, now is fully established. It is frequently found followed by a restatement or paraphrase. While the Ritual Quotative almost invariably is unaccompanied by any overt SPEAK, but is always followed by íti, the subsequent restatement may or may not be followed by SPEAK and/or íti. Example (84) may serve as an illustration of some of the patterns which can be found.

- (84) devāsya savitūḥ savé íti (/) devéna savitrā prásutaḥ íti etát(/)
svargvāya śaktyā íti (/) yátha eténa kármapā svargan lokam
iyād evám ō etát āhā (ŚB 6.3.1.14)
 SPEAK
 '... "at the impulse of divine Savitr" (= VS 11.3b); that (is)
 "impelled by god Savitr" (= the explanation/paraphrase); "with
 power to the heavenly (world)" (= VS 11.3c); "so that by this
 act one might go to the heavenly world" (= explanation/para-
 phrase), that he says'

7.5: Finally, in addition to further instances of FEAR with íti-quotative and the Purpose variety of CAUSE with QUOTE + íti (cf. sections 6.4 and 6.5), Vedic Prose also offers the first attestations of a truly 'causal' CAUSE construction. And while the other two constructions just mentioned retain certain characteristics (in terms of subjunctive mood and optional accentuation of the verb), the causal construction has no such overt features of subordinate structure; cf. (85). However, the frequent occurrence of the causal correlative tāsmād 'therefore' after such causal quotative constructions clearly suggests a dependent-clause interpretation.

- (85) yajñām ... tanavai íti tāsmād ādityām carúm ... nīrvapati
 '(Because/thinking) "I will ... spread the sacrifice", therefore
 he prepares the Aditya pap ...' (ŚB 3.2.3.7)

At the same time, however, at this stage of the language it still seems to be always possible to supply an expression like 'thinking', as in the gloss above. Where such a reading would not be possible, i.e. where the causal relation between dependent and main clause is conceived of as an objective one, existing independently from the thinking of the agent of the main clause, different structures are found, as in (86) and (87).^{24a}

- (86) yād dāśadaśa ékaikam camasām anuprásrptāḥ bhāvanti
tāsmād u evá daśapēyam (ŚB 5.4.5.3)
 'because each time ten (men) creep after the cup, therefore it
 is called the daśapeya (= the one to be drunk by ten)'

- (87) yād eṣām rājāṇaḥ rājasūyayājīnaḥ āsuḥ tād ha sma tād abhyānuḥ
 'because their kings were performers of the rājasūya, therefore
 they used to say this' (ŚB 5.5.2.5)

This restriction on the use of the causal construction clearly indicates the origin of the structure, namely as a reinterpretation of quotatives with deleted THINK.

7.6: The major innovations of Vedic Prose, then, lie in the development of 'nesting' īti-quotatives (but with a constraint against īti 'pile-up'), the use of the quotative with SEE, the extension of the NAME quotative to technical terminology, its use as an equivalent of italics in technical discussions and to indicate emphasis, and the development of a Causal variety of the CAUSE construction (limited to causes existing in the mind of the main-clause agent). In addition, Vedic Prose shows further extensions of the Embracing quotative at the expense of other competing constructions, as well as fuller use of the 'Ritual Quotative'. At the same time, however, older, rival constructions persist (leading to occasional blends between indirect and quotative constructions). Moreover, we find occasional instances of archaic īti 'thus', used non-quotatively.

8: The Classical Language

The post-Vedic language described by Speijer (1886:379-88) does not differ markedly from the Vedic-Prose situation just described. (Even syntactic blends between indirect and quotative constructions continue to be found; cf. *ibid.* 382-3.) The main differences can be briefly characterized as follows:

(a) The occasional appearance of īti-initial quotatives, as in (88) below, seems to suggest that though moribund and not appearing in the post-Rig-Vedic earlier language, this construction never was completely lost.

- (88) īti ca enam uvāca dukkhitaḥ / suhrdaḥ paśya ...
 'and (thus) she, distressed, said to him "See the friends ..."'

(b) īti may appear after QU(estion words), as in kim īti 'why' (lit. 'saying what').

(c) The quotative may be used to state 'objective' CAUSE, not just a causal relationship existing in the mind of the main-clause agent; cf. example (1) above.

9: Sanskrit summary

Surveying the evidence of Sanskrit we find a constantly expanding use of the quotative construction, especially that of the Embracing variant. This expansion can be diagrammed as follows.²⁵ (The inserted quotative is ignored.) Given this increasing expansion and reshaping of the construction, from very modest, and morphosyntactically quite different beginnings in the Rig-Veda, to the full panoply of attestations in the Classical Language, it is not difficult to see in the quotative a Sanskrit innovation, just barely in its beginning stages in the earliest, Rig-Vedic language. At the same time, however, it is also possible to argue that in the shape in which it appears in the Early Rig-

Veda, the quotative may be essentially inherited and that the innovations which have taken place lie in the gradual reinterpretation, reshaping, and expansion of the construction.

To more meaningfully decide between these two competing interpretations, it will be necessary to look at outside, comparative evidence

	Obligatoriness/Frequency				Syntax/Pragmatics											
	G	I	F	E	CAUSE											
					SAY	THI	KNO	HEA	SEE	Ø	Pur.Caus.	NAME	QU	EMPH	ONOM	OTHER
Early RV	C	R	F	R	}	+	(+) ¹	-	+	-	-	-	-	-	-	-
Late RV			F	C												
AV	C/F	-	C	C	}	+	+	+	-	+	-	+	-	-	-	+ ²
Late AV			C	F												
Ved. Pr.	F	-	R	F	}	+	+	+	+	+	+	+ ³	-	+	+	+ ³
Class.	F (R)	R	F	F												

Notes: ¹Only *iti*-less construction; ²'Ritual Quotative' (or, in the Classical Language, quotation of authorities, etc.); ³With FEAR; ⁴Not 'objective' cause; ⁵Also 'technical' uses.

II: COMPARATIVE INDO-EUROPEAN

10: Latin and Hittite (Anatolian)

The only other two ancient Indo-European languages which are generally acknowledged to have a quotative construction are Latin and Hittite (and other ancient Anatolian languages related to Hittite).

10.1: In Latin, ²⁶ the quotative construction is marked by the finite-verbal form inquit, inquam 'says, say', usually (but not necessarily always) inserted into QUOTE after the first word or constituent of the quotation; cf. the examples below. In general, this quotative construction requires the presence of SAY or of an easily recoverable SAY. However, some special uses can be discerned. One is found in the quotation of scriptural authority, where however a verb of speaking is easily supplied; cf. (89). Similarly, the use as a 'definitory' construction, as in (90), is not too difficult to derive from a literal interpretation of inquam as 'I say'. The most specialized use seems to be that found in (91), where inquit marks the objections of a hypothetical opponent in what is hypostasized as a 'real' argument.

- (89) furem ... luce occidi vetant XII tabulae: 'cum ... hostem ... teneas, nisi se telo defendit' inquit, 'etiamsi ..., non occides ...'

'the 12 Tablets prohibit killing a thief by daylight: "When you should hold an enemy, unless he defends himself with a weapon" "even if ..., you should not slay ..."

- (90) has compedes, fasces, inquam, hos laureatos
'these fetters, "these laureled powers of authority" (I say)'
= 'these fetters, i.e. these laureled powers of authority'

- (91) 'parva inquit 'est res'; at magna culpa
'(one might say) "the case is (of) small (significance)",
but the guilt (is) great'

Note that though the Latin quotative construction is not excessively rare, it is dwarfed in much of Classical literature by the indirect accusative-cum-infinitive construction.

10.2: Unlike Latin inquit/inquam, the Hittite and general Anatolian quotative marker wa(r) is quite commonly used. True, there may be occasional exceptions, especially in the mythological texts and in short verbal exchanges; cf. Friedrich 1967:148-50. But ordinarily the particle is used; cf. (92) beside (93).

Ever since Götze and Pedersen (1934:74) proposed it, the generally accepted derivation of wa(r) has been from the verb Hitt. wer-ia- 'call, invoke'. To Götze and Pedersen's mind, such a derivation would have parallels in the [clitic-shortening] development of quotative Russ. de, OPol. dzie, Czech prý from earlier full verbs of saying. [These earlier full forms are *dějati 'put, say' for Russian and Polish, pravy 'said' for Czech.] Recently, however, Joseph (1981, 1982) has proposed a different source, namely Hitt. iwar 'like, as', for which Joseph finds parallels in the development of like into a quotative particle in certain American English dialects, an apparently similar development in Neomelanesian, and the use of particles meaning 'like, thus' in Buang (New Guinea) and in Tibeto-Burman Lahu.²⁸ Given that both 'thus' and SPEAK can frequently function as quotative markers, Joseph's hypothesis may well constitute a credible alternative. (I would feel more comfortable, however, if it could be shown how Hittite non-deictic iwar 'thus, like' could acquire the deictic meaning 'thus' normally found with such quotative markers.)

Be that as it may, the morphosyntax of the particle is quite simple: To the extent that it is used at all, wa(r) occurs in the characteristic initial strings of the Anatolian languages, following the first (presumably accented) element of each quoted sentence.

Ordinarily the quotative is governed by SAY. However, 'name', 'inscribe' may also be found. In a number of cases with omitted SPEAK, it is also possible to supply a verb like THINK, but SAY cannot be ruled out.

Frequently, however, the preceding SPEAK may be further accompanied by deictic kiššan 'thus'; cf. e.g. (92) below. (Additional examples may be found in Friedrich 1967 and elsewhere (passim).) Note that this introductory formula may also occur where no quotative particle occurs in the QUOTE; cf. (93).²⁸

- (92) nu man kiš(š)an kuiški memai annišan-war-an LUGAL-iznanni kuwat
SPEAK
tittanut (/) kinunma-wa-šši kurur kuwat hatrieškiši (/)
man-war-ašmukan sulliyat kuwapi Ū-UL
'Now, if someone speaks as follows "Why did you formerly place
him on the throne? And why are you now declaring war on him?"
(In answer, I say) "If he had never started hostilities with
me ..."
(Apology of Hattusilis 3.73-77)

(94) takku SAL-an kui[šk]i pittenuzzi (/) EGIR-andama[šm]a[š]a
[š]ardiyaš paizzi (/) takku 2 LŪ.MES našma 3 LŪ.MEŠ akkanzi
šarniki[1] NU.GAL [z]ik-wa UR.BAR.RA kišat
'If anyone elopes with a woman, and a rescuer goes after them,
if two men or three men die, (there is) no recompense "You
have become a wolf"' (Selections from the Code, 2.29-30)

(95) [nuku] pašnullašaš ti[ya]z tabarni LUGAL-i papazku-war ti
[anna]zku-war ti ... (KUB XXXV.165vs.21-22)
'And now, sungod of the gods (?), for Tabarna, the king, you
(are) "father". you (are) "mother" ...'

Hittite and the other Anatolian languages thus offer clear evidence for a quasi-obligatory quotative particle -wa(r)- which normally is incorporated into the initial string following the first word of each clause of the QUOTE. Beside with overt SPEAK (= SAY), it may also be used with Ø-SPEAK. And this construction shows some probable evidence for extended, secondary or specialized uses (as in (94) and in the 'talking' inscriptions of Hieroglyphic Hittite), and some possible evidence in (95). In addition to, and sometimes instead of, the quotative particle -wa(r)-, Hittite quite frequently shows kiššan 'thus' preceding QUOTE.

As noted in my other contribution to this volume, Homeric Greek has a Final Formula which ordinarily indicates the end of a single-speaker direct quote or of an (extended) verbal exchange between several speakers. This Final Formula comes in two basic variants, one consisting of the defective verb ē '(he) said', the other of hōs 'thus' plus a verb of speaking, most usually a finite form of phē/phā- 'speak': cf. (96) and (97). In the first three books

of the Iliad, out of 60 cases where this Final Formula could occur, only 5 do not show it. That is, in Homeric Greek, this construction appears to be quasi-obligatory.

- (96) Pēleífdēs d' ... prosēēipe ... / ... / hōs phátō Pēleífdēs ...
SPEAK
'But the son of Peleus spoke ... QUOTE ... (Thus spoke the son of Peleus) and ...' (Il.1.223-45)
- (97) tēn d'apameiboménos proséphē ... Akhilleús/ ... / ē kai
SPEAK
'to her, answering, spoke Achilles QUOTE (He spoke) and ...'
(Il.1.214-19)

This Formula usually occurs after a QUOTE introduced by a preceding SAY, as in the above examples. Sometimes a related noun may appear instead of the verb. Exceptions to this pattern are exceedingly rare. I have noted only the types exemplified in (98) and (99). Note however that in (98) there is a noun of speaking next to finite HEAR; and in (99) a verb (or noun) of speaking is easily supplied. In both cases, the Final Formula is used, even though in (99) no explicit SAY is found in the structure preceding QUOTE, and in (98) the finite verb is HEAR.

- (98) ... amēlíkton d' óp' ákousan / ... / ē kaí ... (Il.11.137-43)
'voice' HEAR
'but they heard an ungentle voice QUOTE (He spoke) and ...'
- (99) aĩpsa d' ep' Aíanta proíei kēruka Thoōtēn / ... / hōs éphat ...
'sent'
'Forthwith he sent to Aias the herald Thootes (with the words) QUOTE (Thus he spoke) ...' (Il.12.342-51)

In terms of its quasi-obligatoriness and the relatively few variants which it permits, the Homeric Greek Final Formula clearly qualifies as a quotative. However, it is remarkable that there is no strong evidence for extended uses of the construction, with or without Ø-SPEAK.

In concluding this section it might be mentioned that in addition to the Final Formula, a variant of one of its sub-types may occasionally occur preceding QUOTE, in a 'generic-quote' construction; cf. (100). (Cf. also note 27 of my other contribution to this volume.)

- (100) hōde dé tís eĩpesken Akhaiōn te Trōon te / ... / hōs éphan ...
SPEAK
'and thus would say one or another of the Achaeans or the Trojans QUOTE (Thus they spoke) ...'

12: Avestan²⁹

As noted by Kuiper (1967), Avestan has a construction with uiti 'thus' which in many ways resembles the early Rig-Vedic iti-construction, but which also differs from it in its morphosyntax. In the following I will take a closer look at the Avestan evidence, including a construction overlooked by Kuiper.

12.1: In addition to indirect constructions similar to those of Sanskrit, Avestan also has two direct quote constructions, one employing the particle uiti 'thus', the other having no special particle. Both of these can be used with SAY and THINK; the unmarked construction additionally can occur with HEAR, FEAR, and Ø-SPEAK; cf. the examples below.

- (101) mraot ahurō mazdā spitamāi zaraθuštrāi ... (Yt.10.1)
 SPEAK
 'A.M. said to Z., the Spitamide, QUOTE'
- (102) uitiyaojanā miθrāi vouru.gaoyaoitēe ... (Yt.10.1)
 SPEAK
 'Thus speaking (they cry to/address) M.V. QUOTE'
- (103) iθa mainyete duxš^ovaranā / noit imat vīspəm dužvarštəm (Yt.10.105)
 SPEAK
 '"Thus", thinks the ill-fated, "(it is) not all this illdoing ..."
 OR: 'Thus thinks the ill-fated ...' (?)
- (104) aōāt fraša hām.rāzayata ātarš ... uiti avaθa maṇhānō (Yt.19.47)
 'thus' SPEAK
 'then A. stood up, thinking thus QUOTE'
- (105) sraotū ... gūšahva tū ahurā / kē airyamā aṇhat (Y 49.7)
 SPEAK SPEAK
 'let him hear, listen you, O A. "What Aryan shall be ...?"'
- (106) yahmat ... fraterəsenti ... mōi tū iθra ahurahe ... vaēyāi
 FEAR
 jasaēma (Yt.10.68-9)
 'wherefore they are frightened ... "May we not meet here with the charge of the ... lord"'
- (107) srīra daōšaiti daēmāna ... kō mām yazāite ... (Yt.10.107-8)
 'he looks around (lit. he places/gives beautiful eyes) (thinking/saying) "Who will worship me? ... "'

12.2: Except perhaps for (103), all the above examples have SPEAK (± uiti) before QUOTE; and that is in fact the most common pattern. However, a minor pattern is that found in (108), with (uiti +) SPEAK inserted into QUOTE.

- (108) ušta ahmāi naire mainyāi / uiti mraot ahurō mazdā / āi ašaum
 SPEAK
 zaraθuštra (Yt.10.137; sim. ib.138, Yt.19.53)³⁰
 '"Hail to the authoritative man" said A.M. "O truth-owning Z."'

12.3: The relative frequency of the uiti-construction over against the unmarked structure is subject to considerable fluctuation. Thus in the Gāthas, the ratio of uiti to Ø is 1 : 10 (counting as one single instance the 9 repetitions of the formula taṭ θwā peresā ... 'that I ask you QUOTE' in Y 44). In the hymn to Mithra it is 5 : 16. In the total Romanized selection of Reichelt 1911, the ratio is 17 : 100. However, that ratio is skewed by two factors: One is the frequent use of the Verbal Exchange Formula (cf. (109) and the discussion in section 16 of my other contribution to this volume); and that formula

never occurs with uiti. The other consists of 20 instances of the formula exemplified in (110), in which yazata/yazanta 'worshipped' is followed by jaōyat/jaōyen 'prayed' which with the subsequent QUOTE specifies the 'content' of the worship. In its structure, this formula is parallel to what we find in (111), where uiti + SPEAK takes the place of jaōyat (in the same hymn). If we exclude these formulaic expressions, the ratio will be more like that in the hymn to Mithra, namely 17 : 35. (If only the Verbal Exchange Formula is excluded, the ratio will be 17 : 55.) Even with these adjustments, however, the uiti-construction must be said to be used quite sparingly.

- (109) ā dīm pərəsaṭ zaraθuštrō (Y 9.1) (Sim. 44 x elsewhere)
SPEAK
'Z. asked him QUOTE'
- (110) tām yazata ... āaṭ hīm jaiōyaṭ (Yt.5.17-18) (Sim. ib. 19 x)
'her he worshiped ..., and to her he prayed QUOTE'
- (111) tām yazata ... paitivacaṇhaṭ uiti vacōbiš aojanō (Yt.5.76)
'with speech' 'with words' SPEAK
'He worshiped her with speech, thus speaking with words QUOTE'

12.4: What is especially interesting is that uiti almost invariably occurs next to SPEAK (cf. e.g. (102) and (104)), at best separated from it by a noun of speaking (cf. (111)). More than that, when placed next to aoj- 'speak', uiti quite frequently appears in its sandhi form uity- (as in (102)). Considering that sandhi across word boundary, in Avestan, is limited to words which form a single phonological unit (mainly to compounds), this suggests that there has been an (incipient) univerbation of uiti with SPEAK.

Examples (102), (104), and (111) further show uiti occurring with a participle of SPEAK. This is no accident, for of the 17 instances of uiti + SPEAK in Reichelt 1911, fully 11 have a participle of SPEAK. Moreover, this uiti + SPEAK-participle construction may be used either with a 'higher', finite-verb SPEAK (as in (111)), or with a non-SPEAK higher verb (cf. (104)), or with no higher verb at all (as in (102)). Considering that present participles are not normally used by themselves or with non-Aux.-verbs, the use of participles of SPEAK in constructions like (102) and (104) suggests the need for a special explanation. The most probable explanation seems to be that uiti + participle of SPEAK has become a synchronically productive quotative marker. (Structures like (108), with finite SPEAK, then might be archaisms.)

While this interpretation of the participial uiti + SPEAK construction as a synchronically productive quotative marker may be somewhat speculative, it is I believe safe to state that the general uiti + SPEAK (or Ø-SPEAK) construction is comparable in its range of uses to Homeric Greek and comparable to Latin in terms of the frequency with which it is employed.

12.5: There is evidence that in addition to this quotative construction, Avestan developed another quotative marker. As apparently first noted by Geldner (1885:246-7), a couple of very late texts, whose functions vis-à-vis the earlier hymns is comparable to that of Vedic Prose in relation to the Vedic hymns, offer iōa 'here; (thus)', once also iōa 'thus; (here)', indicating 'Ritual Quotes' as in (112) and (113). (Note however that this marker is not obligatory.) Unlike the uiti + SPEAK construction, this iōa/iōa regularly occurs

after the quoted passage, although string-initial elements (such as para īm in (112)) may intervene between QUOTE and the marker.

- (112) dazda managho para īm iōa managhe cinasti (Y 19.13)
SPEAK
"dazda managho" (a quotation from Y 27 on which Y 19 is a commentary) teaches/means "for the thought/for thinking"
- (113) yaḥ dīm dāmabyō cinasti mazda iōa tēm yaḥ ahmāi dāman (ib.14)
SPEAK
"mazda" (= Y 27.13b mazdāi) teaches/means that he (exists) for the creatures (and) that the creatures (are) for him³¹

Etymologically, the iōa of these constructions creates certain difficulties, since it seems to reflect earlier idā 'here' (cf. Skt. ihā 'here'), an unlikely quotative marker. However, the one-time occurrence of quotative iōa, combined with other considerations, provides a clue toward a more satisfactory explanation, identifying the iōa of these constructions as a descendant of earlier iōā 'thus', a cognate of Skt. itthā: First of all, there is independent evidence for a merger of θ and ḍ (< d) in the spoken language of late Avestan; cf. e.g. Skt. veda, GAv. vaēdā : YAv. vaēōa beside vaēōa 'knows', Skt. padya-te 'falls, goes' : YAv. paiōyāite 'he shall fall' beside paiōyeiti 'goes', etc. Secondly, that such a merger led to the interchangeability of earlier idā 'here', and iōā 'thus' is suggested by occasional uses of iōa in the meaning 'here' and of iōa as meaning 'thus'; cf. (114) and (115). In addition, the use of iōa in (116) is strikingly similar to that of itthā in RV bād itthā (cf. (67) above).³² Moreover, the occasional use of deictic relatives of iōa, viz. aθa and avaθa 'thus', in reference to a following QUOTE (cf. (117) and (118), as well as (104) with uiti + avaθa) suggests that iōā likewise must have been usable to refer to QUOTE.³³ Finally, note that conversely, the ordinary quotative marker uiti shows occasional attestation in the meaning 'thus'; cf. (119).

- (114) mā avi zām ni.urvise iōa mē tūm ham.caraḡuha antarə.arəōəm
nmānahe (Yt. 17.60)
'do not go down to the earth. Here wander around in the interior of my house ...'
- (115) nōiḥ zī īm zā šā yā darəya akaršta saēta ... iōa carāiti
huraoōa yā darəya apuθra aēiti (V 3.24)
'for the earth (is) not happy which lies unplowed (for) long, thus/likewise/just as a beautiful woman who goes childless (for) long'
- (116) bāōa iōa āfrasāne daḡhubyō bāōa iōa aēni bərəθi ... (V 3.27)
'truly (thus (it is)), I will go to the countries, truly (thus (it is)), I will go on to give birth ...'
(Sim. ibid.29, except the second bāōa occurs without iōa)
- (117) yō avaθa vyāxmanyata (Yt.19.43)
SPEAK
'who spoke thus at the meeting QUOTE' (Cf. (104), ibid.47)
- (118) aθa mraoḥ ahurō mazdā (Āfrīnakān 4.3)
SPEAK
'Thus spoke A.M. QUOTE'

- (119) *yōi vañhēuš ā managhō šyeintī yāscā ūiti* (Y 39.3)
 'who (masc.) hold on to the Good Thought and who (fem.) thus/
 likewise'

12.6: The late Avestan 'Ritual Quotative' construction with *iōa/iəa* thus can be identified as an earlier *iōā* 'thus' construction, and thus as ultimately related to the quotative *ūiti* 'thus' construction: Apparently *ūiti* and *(*)iōā* represent different specializations of constructions in which a deictic adverb meaning 'thus' was used to focus the listener's attention on a particular QUOTE. While *ūiti* was almost entirely specialized in this new function (the type (119) seems to be limited to three examples), *iōā*--like *aōā* and *avaōā*--largely retained its original deictic function, becoming quotative only in the 'Ritual Quotative'.

12.7: In conclusion it might be noted that the normal use of *ūiti* + SPEAK before QUOTE, the rarer insertion into QUOTE, and the positioning of **iōā* after QUOTE indicate an original freedom of occurrence comparable to that of *īti* + SPEAK in early Rig-Vedic (cf. 5.3-5). This impression of comparability is further supported by the fact that just as in the Rig-Veda (cf. section 5.3), the Avestan order of the quotative particle and SPEAK may in a few rare cases be reversed; cf. (120).

- (120) *aōā-ca ūiti* (V 4.47)
 SPEAK
 'and I say (thus) QUOTE'

The dynamics of the Avestan constructions, however, differ from what we find in Sanskrit: There is no evidence in Avestan for the complex developments found in the late Rig-Veda and especially in the post-Rig-Vedic language. Moreover, unlike the Sanskrit quotative, the Avestan constructions remain quite optional throughout the attested history of the language.

13: Other Indo-European languages

Attested considerably later than the languages so far discussed, the other Indo-European languages do not seem to offer in their earliest stages any unambiguous evidence for quotative constructions. In some of the languages, however, some such constructions did develop. The case is most clear for Slavic, where as noted in 10.2, Russian, Old Polish, and Czech have a particle *de*, *dzie*, *prý* respectively, which can be traced to earlier SPEAK. To these might be added the similar Russian (slang) *mol*. Constructions marked by these particles (which usually take the second position within QUOTE) may or may not be preceded by 'independent' SPEAK. The constructions are used in various contexts, similar but perhaps not identical to the use of the German subjunctive in reported speech. These may range from quoting someone without taking responsibility for the accuracy of what is being quoted, to just a simple repetition of what the speaker has said earlier. Unlike the German subjunctive construction, however, these Slavic particles are always used with direct QUOTE.³⁴

A quasi-quotative construction is found in the *quotha* of earlier Modern English, as in (121) below. However, this construction is limited to very special (ironic, etc.) pragmatic settings.

(121) The fickle moon, quotha, I wish my friends were half as constant³⁵

A more recent development is that noted by Joseph (1981) for (it's) like in colloquial Ohio English, as a marker of "internal" quotation--an approximate representation in the form of reported speech of what someone had in mind but did not express.' In some ways, of course, the use of a construction with like, rather than thus, is quite unusual. However, one may conjecture that this regional development (a) is parasitic on the more general use of like in colloquial American English and (b) may have proceeded from a structure of the sort (it's) like this.

Developments of this sort are interesting in that they show that quotative constructions may arise at various times, through independent developments. Moreover, they show that similar elements (verbs of speaking and adverbs meaning 'thus') may be drawn on in such independent developments. At the same time, however, it is interesting how rare such developments seem to be in the more modern Indo-European languages of Europe. This makes the appearance of quotative constructions in all the early Indo-European languages^{35a} so much more remarkable.

14: Summary of the Indo-European evidence

All of the ancient, earliest-attested Indo-European languages^{35a} have some kind of quotative construction. The morphosyntax of these constructions may differ considerably, as indicated in the following table. Moreover, even to the extent that languages might agree on using SPEAK, 'thus', or a combination of these as quotative marker, the actual morphemes employed differ (as between Skt. īti, Av. uiti/iθa, Gk. hōs 'thus'). Also the degree of obligatoriness may differ, with Hittite and Homeric Greek having the construction most consistently, Avestan and Latin showing it much more sparingly, and Rig-Vedic Sanskrit holding an intermediate position. All of the languages, however, agree on permitting the construction only under quite limited syntactic/pragmatic conditions: mainly with SAY and to some extent also with THINK; with HEAR the construction occurs seldom at best. Hittite and Latin, however, also show evidence for some specialized uses of the construction; and so does Avestan with its (late) 'Ritual Quotative'. (None of these, however, are comparable to the full panoply of uses found in Classical Sanskrit.)

In spite of these differences, however, it is--as noted--remarkable that all of these languages should have quotative formations. Moreover, disregarding the differences in morphosyntax and specialized uses which can easily be attributed to independent innovations, the languages show a remarkable agreement in the syntactic/pragmatic contexts in which they permit their respective quotatives. It is, I believe, hardly likely that this situation should be due to chance. It therefore seems more attractive to attribute the construction to the proto-language.

True, this does cause certain difficulties as far as the morphosyntax is concerned. But these are not insurmountable. Thus the appearance of the quotative particle in clause-second position (within the QUOTE) in Hittite and Latin can be attributed (a) to the pattern with quotative marker inserted into QUOTE and (b) to the fact that the marker may well have become clitic and thus--syn-

	Obligato- riness	Quotative marker		Morphosyntax of major quotative marker			
		thus'	SPEAK	Before QUOTE	In QUOTE	After QUOTE	Other
Sanskrit (Early RV)	C	+	!	R	R	F	R ¹
Avestan	C/R	+	(+) ²	F	R	R ²	
Hittite (Anatolian)	F	(+) ³	+ ⁴	-	F	-	
Homeric Greek	F	+	+	(R) ⁵	-	F	
Latin	C/R		+	-	F	-	

Notes: ¹Embracing construction; ²If univerbation of *uiti* + SPEAK is accepted; ³In the rarely attested 'Ritual Quotative'; ⁴Frequently preceding QUOTE, even without quotative *-wa(r)-*; ⁵But note Joseph's connection with *iwar* 'as, like'; *Both 'thus' + SPEAK and plain SPEAK are used; ⁶Only in the rare 'generic quote' pattern.

chronically functioning as sentence clitic for QUOTE--would have gone into clause-second position in accordance with Wackernagel's Law.

Noting now the prominent role played by words meaning 'thus' in Sanskrit, Avestan, and Greek, and the optional use of 'thus' in Hittite,³⁶ as well as the role of SPEAK in Greek and Latin (and also perhaps in Hittite), it is possible to reconstruct a syntactic pattern with 'thus' + SPEAK as a quotative construction for Proto-Indo-European and to permit this structure to occur before, after, and inserted into QUOTE: All we need to allow for is the possibility that just as in independent uses, 'thus' and SPEAK were subject to constant morphological and lexical remakings (cf. Skt. *itthā/itthām, iti, tāthā*, Av. *uiti, iθa, aθa, avaθa*, Hitt. *kiššan*, Gk. *hōs, hōde*, etc., Lat. *ita, sic*, all meaning 'thus, so'), so also in their quotative uses they could undergo some remaking, especially as long as the etymological meaning/function of the construction was still quite transparent. Where through reinterpretation, however, one or the other of the two markers becomes the major quotative marker and where the position of that marker gets to be relatively fixed, at that point the construction would tend to become frozen, permitting little or no further change.

In all fairness, however, it must be admitted that a different, 'areal' explanation is conceivable, namely that the appearance of quotative constructions in these ancient Indo-European languages was due to influence from the ancient Near Eastern prestige languages which, as we shall see presently, had quotative constructions of similar structure. What may be attractive about this explanation is the fact that as the prestige of these ancient Near Eastern languages and their cultures declined, so apparently did the use of quotatives in the Indo-European languages (except for Sanskrit which by this time, however, can be assumed to have been safely located in another quotative area,

that of South Asia). For note that there does not seem to be any evidence for a survival of the Avestan, Homeric Greek, and Classical Latin quotatives in the later (quasi-)descendant languages. (Note that though later Greek may occasionally show constructions reminiscent of the Homeric patterns, these lack the obligatoriness and the relative standardization of the Homeric structures.)

Attractive as this alternative analysis may appear, however, I am bothered by the assumption that the Near Eastern influence reached as far west as Latin. Moreover, it may be the disappearance of quotative constructions which is an areal phenomenon, just like the change from SOV to SVO syntax in (most of) continental Europe (cf. Hock 1982). In fact, this disappearance of the quotative may geographically be more limited than would appear at first sight. For later Greek and Iranian (Persian), as well as Armenian show direct-discourse structures (without change in person or mood) introduced by a new set of markers: Gk. (h)óti, MPers. ku, NPers. ki, Arm. (e)the, bam (etc.); cf. Hock 1975:107 and Friedrich 1943. And as Friedrich (*ibid.*) shows, constructions of this sort are found also in Georgian (with postposed -o) and Turkish (with diye 'having said').

Whether we attribute the early Indo-European quotative constructions to inheritance or to areal influence, however, the conclusion seems inescapable that quotative constructions remarkably similar in their morphosyntax and syntactic/pragmatic uses to what we find in early Rig-Vedic are found also in the other early Indo-European languages and that this remarkable similarity can hardly be attributed to independent developments.

III: NON-INDO-EUROPEAN LANGUAGES

15: Ancient Near Eastern languages

15.1: The earliest attested language, Sumerian, is reported to have had a quotative construction marked by -e-še, perhaps an 'emphatic' form of a verb eš- 'say'. This construction, however, seems to have been used quite rarely. Moreover, it could apparently be used independently, in non-quotative contexts. The syntactic position of this form was post-QUOTE. (Note that Sumerian was an SOV language.) Cf. e.g. Jestin 1946:331-5.

15.2: Accadian (likewise an SOV language) also has a quotative construction which, however, seems to be used more commonly. (Even so, other constructions were available, such as unmarked QUOTE (von Soden 1952:208), or dependent clauses introduced by kīma 'that' (*ibid.*233).) The Accadian quotative construction either was introduced by preposed enma (later umma) 'thus' or marked by inserted mi or me (a shortened form of enma) which frequently, but not necessarily occurs after the first element of QUOTE. (Cf. von Soden 1952:176, 178.) Examples would be the following.³¹ Note that (122) shows that the quotative construction may be used without overt SPEAK. I have, however, not found any evidence for specialized uses of the quotative.

(122) enma iškūn-^dagan ana lugala-ra
'Thus (says/writes) I.D. to L.QUOTE'

(123) apunama guitumma-me eqlam ula a'ruš a taqbī
'Do not under any circumstances say "The Gutaeans (are here, therefore) I did not cultivate the field"'

Given that Accadian SOV is commonly attributed to Sumerian influence, (cf. e.g. Riemschneider 1969:16), it is tempting to see Sumerian substratum also in this construction. However, as noted earlier, the Sumerian quotative construction is quite rare. Moreover, its morphosyntax (postposed SAY) is rather different from the preposed or inserted 'thus' of Accadian.

Similarly, one might perhaps be tempted to see Accadian influence in the Hittite quotative. In this case, the morphosyntax would in fact be much more similar, especially if preposed Hitt. kiššan 'thus' is taken into consideration and if -wa(r)- is derived from iwar via a meaning 'thus'. However, as we have seen, the Hittite pattern has parallels also in the other ancient Indo-European languages.

15.3: Also Elamite had a quotative construction, marked by something like an old, clitically shortened absolutive of a verb SAY which is placed after QUOTE; cf. Friedrich 1943. In addition, however, the examples in Friedrich suggest that QUOTE often is preceded by structures of the sort 'He spoke thus' or even longer expressions; cf. e.g. (124), where na-an-ri preceding QUOTE is the synchronically productive absolutive of a verb of speaking.

(124) hi ši-la ap ti-ri-iš na-an-ri QUOTE ma-ra
 'thus',³⁸ 'spoke' 'saying'
 'He spoke thus, saying QUOTE'

Apparently this construction could be employed also with THINK. I have not seen any evidence for specialized uses of the construction.

This "exuberant" type of construction, with multiple instances of SPEAK as well as of 'thus', looks rather different from the Sumerian and Accadian constructions, but may compare well with some of the early Indo-European constructions, as well as with Classical Tibetan (cf. below).

Here again, direct influence from Sumerian or Accadian may be difficult to justify. At the same time, however, there does now seem to be sufficient evidence to suggest the existence of a quotative linguistic area in the ancient Near East, an area with which perhaps also Proto-Indo-European or at least prehistoric Indo-Iranian, Greek, Anatolian, and Latin may have been affiliated.

16: The languages of South Asia

The interpretation of the evidence furnished by the various non-Indo-European languages of South Asia is made difficult by several factors. Perhaps the most important of these is that none of the languages is attested anywhere as early as Rig-Vedic Sanskrit. Many are attested only since the last century, or even later. Even under the best of circumstances we are therefore required to go back beyond the actually attested data, (closer) to the reconstructed proto-stage, before we can meaningfully compare these languages with early Rig-Vedic.

This is further complicated by the fact that except for the great literary languages (Tibetan; Tamil, Telugu, Kannada, and Malayalam), thorough grammatical descriptions either do not yet exist or are hard to get at for the non-specialist. Even where descriptions do exist, however, they often do not go beyond the morphology and/or morphosyntax of quotative constructions.

Moreover, just as a number of modern Indo-Aryan languages have lost the old quotative (replacing it with the Persian *ki*-construction or similar structures), so also a number of non-Indo-European languages seem to lack quotative constructions. And just as some Indo-Aryan languages (e.g. Nepali, Bengali, Oriya, Dakhini Hindi/Urdu, and Marathi) have quotative constructions but do not agree with each other (or with Sanskrit) on the marker of the constructions, so also we find patterns of disagreement in many of the non-Indo-European languages of South Asia.

As a matter of area linguistics we may say that there is on one hand a Southern group of Dravidian languages, comprising the old literary languages, but also many of the neighboring "tribal" languages, in which postposed absolutes of a Proto-Dravidian *an/en/in-* (hereafter: *an-*) 'say (so)' are used to mark quotatives. To the North of this there is a 'Central' area in which quotatives seem to be found in most of the languages (whether Dravidian, Munda, or Indo-Aryan), but in which there is less agreement on the choice of quotative marker and on its morphosyntax. Intruding into this area is the large group of (North-Central and) Northwestern languages which lacks comparable constructions. This group comprises, among others, Hindi/Urdu, Punjabi, Kashmiri on the Indo-Aryan side, Brahui on the Dravidian side, and Korku and Kharla on the Munda/Austro-Asiatic side. To the East of this area, however, we find two quotative areas: Bengali and Oriya on one hand, Nepali on the other. (Are these two areas linked with each other, or does the 'Northwestern' area extend between them?) And to the North and East we find in Tibeto-Burman a further group of quotative languages. Like the 'Central' group, these languages show a great degree of variation in quotative markers.

The greatest difficulty lies in interpreting these patterns. Kuiper (1967), attributing the 'Southern' *an*-absolutes to Proto-Dravidian, evidently felt that it was this Dravidian pattern which spread to the Indo-Aryan and Munda languages with quotatives, and that the differences in marking observed in the non-Dravidian languages result from different directions taken in calquing the Dravidian construction. On the other hand, Masica (1976:189) apparently took essentially the same pattern of distribution as indicating a need for caution in this matter. Note however that his belief that North and Central Dravidian had no quotatives must have been based on insufficient evidence (cf. below). Before trying to tackle this difficult issue of interpretation, it would seem best to take a closer look at the evidence.

17: Dravidian

17.1: The four literary languages of the South clearly have a quotative marked by an absolute of the verb *an-* which is postposed to QUOTE. This in turn normally seems to be followed by SPEAK, although given other evidence for extraposition in Dravidian, I would not be surprised to find occasional examples of extraposed QUOTE + quotative marker which would thus resemble the Embracing construction of Sanskrit. Unfortunately, however, information on patterns of this sort is virtually impossible to come by, using standard reference works.

In terms of their syntactic/pragmatic uses of the quotative, these languages show patterns strikingly similar to Sanskrit; cf. Kachru 1979. However, the use of quotatives with QU does not seem to be attested for either Kannada or Tamil, the two Dravidian languages studied by Kachru. And Tamil shows no

quotatives with either HEAR or SEE. On the other hand, Indo-Aryan Marathi has virtually all of the Sanskrit uses, except those with ONOM and SEE. And Nepali, likewise Indo-Aryan, has all the Sanskrit uses outside of NAME, EMPH, QU, and ONOM. In this respect, then, the differences between modern Dravidian and Indo-Aryan are not overwhelming. What is remarkable, though, is that none of them seems to have the full panoply of uses found in Classical Sanskrit.

It is also interesting to note that the morphology of the quotative marker shows variation, within a given language, across different languages, and through history. Thus as Kachru notes, Tamil and Kannada have two different absolutive formations each. Moreover, as Kuiper showed, the modern Tamil enru seems to be a replacement of an earlier ena, which outranks enru in Old Tamil by a ratio of 200 : 26. Finally, as Kuiper notes, Old Tamil enru is, with two exceptions, always used 'in its full lexical meaning' (1967, note 41.)

17.2: Moving further to the North, we find some kind of quotative construction in apparently all the Dravidian languages other than Brahui. However, the further North we go (roughly speaking), the greater the differences from the Southern pattern.

Thus Pengo has two quotative markers, inji and injele, but unmarked QUOTES frequently occur instead of quotatives; cf. Text 1.8, 9; 6.1, 12 vs. 6.3, 7-9, 10, 11 in Burrow and Bhattacharya 1970. The postposed quotative markers inja-li'e (etc.), injihi (etc.) of Kuvi often are accompanied by ele 'thus'. QUOTE may in addition frequently be preceded by ele icesi 'said thus'. That is, unlike the Southern languages, Kuvi frequently uses structures similar to the Sanskrit Embracing quotative, as well as structures involving an element 'thus'. Finally, finite (ele) icesi may occur after QUOTE instead of the non-finite quotative markers. (Cf. the texts in Israel 1979.)

No information has been accessible to me concerning the syntax/pragmatics of quotatives in this area.

17.3: Yet further North we find Malto with a possibly archaic, synchronically unmotivated quotative particle ay, but also with unmarked QUOTE, as well as with extraposed structures in which QUOTE is followed by absolutive-like, 'conditional' anko/ankah 'saying, speaking', which always seems to be a part of the following, independent main clause. That is, in these structures, the absolutive-like form of SPEAK does not seem to be part of the preceding QUOTE, but seems to be functioning as a link with the following clause, an element which in terms of surface structure belongs to the following sentence. In addition, tan, je, and ki 'that' may be used after SAY, THINK, and SEE. Cf. Mahapatra 1979:197, 199, and text.

Kurukh uses a 'conjunctive participle' of one of its verb for SAY to mark direct discourse, employing this construction also to mark Purpose; cf. Hahn 1911. However, the verb employed is bac-, not a cognate of an-. Moreover, the 'conjunctive participle' is simply the finite verb agreeing in person and number with the main verb and optionally linked with it by ki or darā. Finally, note that in Hahn's Kurukh version of the Prodigal Son, all direct discourse is unmarked and that a similar situation is found in the examples of Vesper (1971).

Brahui, finally, apparently has no traces of a comparable quotative.

17.4: This evidence can be interpreted in several different ways. On one hand one might claim that the lack of a quotative in some of the languages and the disagreement in the choice of marker and in morphosyntax between many of the languages, as well as the chronological differences between, say, Old and Modern Tamil, indicate that Proto-Dravidian lacked a quotative construction. (It is on the grounds of such arguments that Kuiper (1967) claimed that the quotative constructions found in many of the Munda languages cannot be inherited but must be borrowed from Dravidian.) A necessary corollary to this claim would have to be the assumption that the remarkable degree of agreement in the choice of an- as the basis for the quotative marker of most of the Dravidian languages is attributable to cross-linguistic diffusion, presumably from (one of) the Southern literary languages. Toward the Northern periphery of this diffusion area, then, the change would have slowly lost momentum, leading to the noted irregularities and aberrancies in the languages of the transition area.

This claim might be countered by pointing to the synchronically unmotivated quotative marker ay of Malto, which can be taken to suggest that quotative constructions, even if now no longer de rigueur, have a long prehistory even in this language. This argument would be strengthened if it could be shown that ay can be plausibly derived from an earlier form of an-. It might therefore be argued that the quotative is in fact inherited in Dravidian, and that it was originally built on the verb an- 'say (so)'. This argument, too, would require certain corollary assumptions: First, one would have to argue that whatever the morphology of the original construction, it could undergo morphological renewal (as in OTa. ena vs. Mod.Ta. enaru; cf. also Kuvi finite icesi (?)). Moreover, one might have to claim that Kurukh bācas (ki/dara) shows that even the verbal root could undergo such a renewal. As for the fact that unmarked QUOTES are more common in the Northern area and that there is no inherited quotative at all in Brahui, this would have to be attributed to the influence of Munda and/or (regional) Indo-Aryan.

Some variant of this second analysis may well be correct. Still, one would feel more comfortable if for instance Malto ay could be shown to go back to an appropriate form of an-; or if relics (in 'frozen' onomatopoeia, perhaps) of the old quotative could be found in Kurukh and/or Brahui; or if the optional ele 'thus' of Kuvi could be plausibly accounted for; etc.

Even more difficult is the question of the morphosyntax of the original quotative construction. Should we assume that the quotative marker syntactically belonged to QUOTE (as it certainly seems to do in the Southern languages) or that it was a linking element, connecting QUOTE to the following sentence (as it seems to be in Malto)? Similarly, should we assume that the fairly rigid QUOTE + quotative marker + SPEAK structure of the Southern Dravidian languages is inherited or that the extrapolated, Embracing structures found for instance in Kuvi are more original?

The most difficult issue, however, is that of the original syntax/pragmatics of the quotative. Should we attribute the patterns found in the Southern languages to Proto-Dravidian? Note that one would feel more comfortable about doing so if the relevant facts in the other Dravidian languages were better known. Even then, however, the difficulty arises as to whether we should reconstruct the more fully developed pattern of Kannada or the more restricted

structures of Tamil. (Given the general conservatism of Tamil, the decision should perhaps be made in favor of this language (?).) Moreover, we have to contend with the fact that a number of Modern Indo-Aryan languages have comparable patterns and that Classical Sanskrit shows the most fully developed system.

Under these circumstances it would be difficult to argue for or against any of the following propositions:

- (a) The extended syntax/pragmatics of the quotative is entirely Dravidian in origin;
- (b) The extended syntax/pragmatics of the quotative is entirely Indo-Aryan in origin;
- (c) The extended syntax/pragmatics of the quotative originated in a third language group;
- (d) The extended syntax/pragmatics of the quotative results from convergent and mutually reinforcing developments in Indo-Aryan and Dravidian (as well as, perhaps, in other languages of the area).

18: Munda/Austro-Asiatic

As Kuiper (1967, with ample references) pointed out, a number of the Munda languages have quotative constructions, marked by forms of verbs of speaking, although the verb selected as a marker and its morphological make-up may differ. Combined with the apparent absence of a quotative in Korku and Kharia, this fact is interpreted by Kuiper as showing 'that this construction has been introduced in relatively recent times,' presumably under Dravidian influence.

However, as noted earlier, if we applied the same kind of reasoning to Dravidian, we might have to claim that also in that group of languages the quotative cannot be inherited. Moreover, we have just seen that if we do reconstruct a quotative for Proto-Dravidian, then we must allow for morphological and lexical renewal or even loss in some of the individual languages. Surely, what is acceptable practice for Dravidian must be acceptable also for Munda. Finally, as I have pointed out elsewhere (Hock 1975:90), quotative markers derived from different verbs of saying are found also in the non-Indian languages Mon, Khmer, and Nicobarese, which belong to the same, larger, 'Austro-Asiatic' family as Munda. Here as elsewhere, therefore, the possibility of inheritance cannot be ruled out.

Note that in the case of Munda, our knowledge of extended uses of the quotative is even more restricted than for the "tribal" Dravidian languages, except that Kuiper makes references to the use of the quotative with ONOM in some of the Munda languages.

19: Tibetan and Tibeto-Burman

As noted by Hamp (1976:361 with note 33), Hock (1975:90), and Joseph (1982), quotative constructions are found also in (Modern) Tibetan, Gurung, Lahu, Lushai, and Burmese. In many cases the quotative particles are synchronically opaque; but note Mod. Tib. se (quot.) beside see (quot./SAY); cf. Goldstein and Kashi 1973:114-15. Note also the (Northeast India) Kokborok quotative particle hincy, whose -cy looks suspiciously like the verbal absolutive marker; cf. Karapurkar

1976:99. And in Lahu the marker seems to mean 'thus, so'.

The earliest attested language of this group, Classical Tibetan, shows even more interesting constructions, similar in their morphosyntactic "exuberance" to ancient Elamite, involving preposed SPEAK plus preposed di 'this' and postposed de 'that', elements such as skad(a) 'speech', pre- and postposed ces(a) 'thus', as well as pre- and postposed absolutival forms of SAY, such as (ba)sgoo 'saying'; cf. Jäschke 1883:84-5, as well as pp. 38 and 108.³⁹ Interestingly, the sentence dividers in Jäschke's text sample suggest that the postposed combination of ces(a) 'thus' + absolutive of SAY belongs with QUOTE, not with the following sentence.

Perhaps, then, some quotative construction is native also to Tibeto-Burman. Unfortunately, however, it is again difficult to get any information of the syntactic/pragmatic uses of the construction.

20: The larger area

As can be seen from the discussion in sections 15 - 19, quotative constructions are found over a vast territory, stretching from the ancient Near East, through South Asia--and even beyond, to the Far East (cf. Hamp 1976:361 with note 33). Recurrent features of the quotative constructions found in these languages are (a) some, usually non-finite form of SAY and/or (b) a particle meaning 'thus'.

This 'areal' aspect of the quotative opens up the possibility that any of the languages or language families historically attested with a quotative may owe the construction at least in part to convergent developments, rather than to straight inheritance. However, given the uneven chronological attestations (ranging from the 5000-year old record of the Ancient Near East to the present-day evidence of some of the "tribal" languages), given the large number of languages and language families involved, and given the lack of reliable information on the (pre-)history of most of these, it must at this point be considered impossible to establish a single source for the quotative and to trace the processes through which the construction spread through the area.

IV: SANSKRIT RECONSIDERED (CONCLUSION)

21: The findings of the preceding sections and the evidence for quotative constructions in all of the early Indo-European languages have important repercussions for an assessment of the claim that the Sanskrit quotative resulted from Dravidian influence:

The early Rig-Vedic morphosyntax and syntax/pragmatics of the iti-quotative do not seem to differ in any appreciable manner from the various patterns found in the other ancient Indo-European languages or in the non-Indo-European languages of the ancient Near East. Specifically, the morphosyntax and syntax/pragmatics of early Rig-Vedic are remarkably similar to what we find in Avestan (except that Avestan has two constructions in complementary distribution, one marked by uiti 'thus', the other by *iōā 'thus').

The Embracing construction of Late Rig-Vedic and especially of the later language, to be sure, differs appreciably from what we find in any of these other

ancient languages. True, as we have seen in 5.5, it is possible to motivate this innovated construction in terms of the synchronic structure of Rig-Vedic Sanskrit. Still, the absence of similar developments in other Indo-European languages and the fact that in the non-Indo-European languages of South Asia, structures of this sort are possible (as in South Dravidian) or even common (as in some of the "tribal" Dravidian languages, as well as in Classical Tibetan), suggest that the development may have been due to areal pressures. It does not follow, however, that these pressures must have come from Dravidian. For as noted earlier, it is by no means clear whether Embracing constructions (with extraposition of QUOTE plus quotative marker) should be reconstructed as a common phenomenon of Proto-Dravidian, or whether the stricter pattern QUOTE + quotative marker + SPEAK of the Southern Dravidian languages should be reconstructed. If the latter should be the case, then of course the Embracing construction of Sanskrit, with its extraposition of QUOTE + *iti*, would be quite un-Dravidian. Moreover, given that extraposition is an eminently Indo-European phenomenon, it might be possible that the Embracing quotative of Sanskrit and the rebracketing of the quotative marker with the preceding QUOTE likewise is an essentially Indo-European development, and constitutes one of the elements which Sanskrit contributed to the South Asian convergence area.

A much more promising area would be that of the syntax/pragmatics of the quotative. For in the other ancient Indo-European languages, as well as in the ancient Near Eastern languages, that syntax/pragmatics was rather "shallow", with only SAY and THINK (occasionally also HEAR), as well as \emptyset , governing the quotative, and with very few specialized uses of the quotative. If it should turn out that the impressive array of uses found in Classical Sanskrit and, in somewhat diminished form, in Modern Tamil, Kannada, Bengali, Oriya, Nepali, Marathi, and Dakhini Hindi/Urdu, is limited to South Asia, then the increasing development of Sanskrit toward such a complex quotative syntax may constitute a component of the "Indianization" of Sanskrit.

Even here, however, it seems necessary to exercise some caution. For in our present state of knowledge we cannot be sure (a) whether the extended quotative syntax is an exclusively South Asian feature and (b) to what extent that syntax may be attributable to Sanskrit, to Dravidian, to other languages of the area, or to convergent and mutually reinforcing developments in all of these languages. Note that as we have seen, all the Sanskrit uses of the quotative can be explained in terms of purely internal developments, involving re-interpretations and generalizations. In fact, the more fully developed range of uses found in Classical Sanskrit (as compared to Modern Tamil and Kannada) makes it somewhat difficult to attribute the total pattern to Dravidian influence.

The best that can be said, then, at our current state of knowledge, is that the development of the Embracing construction and of various special syntactic/pragmatic uses of the quotative in later Sanskrit may constitute part of the "Indianization" of Sanskrit. It is not, however, possible to state with any degree of certainty the extent to which these developments are attributable to internal Sanskrit developments, to outside influence, or to a convergent combination of the two. Nor does our current state of knowledge permit the claim that if there was outside influence, that influence can have come only from Dravidian.

Clearly, what would be needed to come to more informed judgments in this matter is a significant increase in our understanding of the structure and history of the various non-Indo-European languages and language families of South Asia. It is my fervent hope that this challenge will be met, especially by scholars who would like to argue for outside, non-Indo-Aryan influence on Sanskrit.⁴⁰

NOTES

¹Research on this paper has been in part supported by 1979-80 and 1982-83 grants from the University of Illinois Research Board. I have also benefited from discussions and correspondence with the following scholars: M. B. Emeneau, F.B.J. Kuiper, C. Masica, E. Polomé, F. Southworth, S. N. Sridhar. Needless to say, these scholars would not necessarily agree with all the conclusions reached in this paper.-- For perspicuity's sake, Sanskrit examples will be given in their pre-pausal form, not in their attested sandhi form. Quotative particles and related linguistic forms are characterized by double underlining; quoted material, by single underlining.

²Bloch (1934:325-8) and Mayrhofer (1953:355) anticipated Kuiper. However, Bloch had certain reservations about claiming Dravidian influence, and Mayrhofer felt that there might have been a pre-Dravidian and pre-Sanskrit substratum from which both Sanskrit and Dravidian got their quotatives.

³Emeneau's 1969 paper expands on Kuiper's discussion of onomatopoeia + iti in post-Rig-Vedic Sanskrit.

⁴Classical Sanskrit examples quoted in this paper are from Speijer 1886.

⁵Note however that Debrunner 1948 prefers not to consider this a type of indirect discourse (or of direct discourse).

⁶śru- 'hear' is attested once in the Rig-Veda with direct discourse; cf. 5.6, example (40) below.

⁷Possible additional Rig-Vedic examples of such more 'orthodox' indirect discourse constructions, not listed in Debrunner, are found at 4.18.6, 5.27.4 (with preceding iti), 5.30.2, 5.48.5, 10.52.1 (2x).

⁸QUOTE + iti at 10.17.1, 24.5. 33.1, 34.6, 61.12, 73.10, 95.18, 97.4, 109.3, 115.8-9 (4x), 119.1 (2x), 130.1, 146.4. Unmarked QUOTE at 10.9.6, 10.11, 18.1, 22.6, 23.2, 27.18; 34.4, 5.12, 13; 40.5, 11; 52.1, 61.18, 79.4, 82.2, 88.17, 95.17; 97.17, 22; 109.4, 120.9, 129.6, 164.1.

⁹Rig-Vedic passages with such uncertain interpretation of the function of iti are: 1.138.3, 4.1.1, 5.7.10, 5.27.4 (followed by indirect discourse), 5.41.17, 5.53.3, 6.62.7, 8.30.2, 10.27.3, 10.61.26, 10.120.4. In addition there are considerable difficulties in interpreting the occurrences of iti in 1.191.1 and 5.52.11; cf. Hock 1975, note 22.

¹⁰Other examples occur at 5.30.9, 8.24.30, 10.18.9, 10.23.2, 10.52.4, 10.61.8.

¹¹This chronology is for the purposes of this paper stated in terms of Arnold's (1905) division of the Rig-Veda into five strata: Archaic (A), Strophic (S), Normal (N), Cretic (C), and Popular (P). For ease of exposition and so as to have sufficiently large numbers for statistical comparison, I have combined the first two and the last two of these and, with some renaming, divided the Rig-Veda into the following three chronological strata: Early (= A + S), Middle (= N), Late (= C + P).-- I am fully aware that there are a number of problems with Arnold's criteria for determining chronological affiliation. However, I don't know of any other full chronologization which could satisfactorily replace it. Moreover, some comfort can be derived from the fact that the quotative was not one of the criteria used by Arnold in determining his chronology.

¹²The attestations are at 5.61.8, 8.92.2, 8.93.5, 9.101.5, 10.73.10.

¹³4.25.4, 4.33.5, 4.35.3, 5.37.1, 9.39.1, 9.63.9.

¹⁴1.109.3, 1.161.9 (2x), 6.54.1, 7.41.2; 7.104.15,16 (2x); 10.33.1, 10.109.3, 10.146.4.

¹⁵Early: 8.32.15 and 10.24.5; Middle: 4.33.5 (2x).

¹⁶1.162.12, 1.164.15, 2.12.5 (2x), 6.56.1, 9.114.1.

¹⁷For definition and discussion of this term, cf. my other contribution to this volume. Note that ca and céd (< ca + íd) never can be clause-initial, and that céd must be second in its clause.

¹⁸Both at 2.12.5.

¹⁹Here, \emptyset indicates non-quotative; íti, quotative.

²⁰A great deal of Atharvānic material has been taken over verbatim from the Rig-Veda. This material is ignored in the following discussion.

²¹The text has -d (sg.3) which, however, makes no sense.

²²This follows the translation of Bloomfield (1899), who takes this difficult passage to be a riddle, the answers being: 'the dog', 'the leaf', 'the hoof of an ox'.

²³These passages are (a) ŚB 8.1.1, 8.1.3-4, 8.2.1.1-6,12-18, and (b) 11.5. 1. (a) contains (in 8.1.1 and 8.2.1) sections heavily quoting from the ritual texts of the Vājasaneyi-Saṃhitā, with brief explanatory restatements or paraphrases and (in 8.1.3-4), less 'text-bound' explanations of the ritual. (b) contains the story of Uryaśī and Purūravas, with the text of RV 10.95 used as the direct quotations of the two protagonists. Though containing a few explanatory restatements or paraphrases of that text, this selection represents a much less 'technical', much more 'literary' variety of Vedic Prose.

²⁴A similar passage, with íti 'omitted' after the second, final fragment of QUOTE, is found at JB 2.128-30. Conversely, there are a few cases where íti may appear after each sentence of a longer QUOTE, even if there is no intervening

SPEAK; cf. the following example:

yām ... kāmāyeta kṣódhukā syād íti fṣam ... ādi íti (MS 3.2.5)
'of which he should desire "May it be hungry;" "I have eaten its strength ..."'

^{24a}I have found only one possible exception, namely (ii) below. However, the context is such that this passage can be explained as a case of dittology: The preceding paragraph contains (i) which, following the general rules of Vedic Prose, gives an 'internal', 'subjective' reason for an action. Both (ii) and (iii), on the other hand, state 'external', 'objective' reasons, where it would be impossible to insert or supply something like 'with this thought'. In (iii) this reason is stated by means of a dependent-clause structure, marked by hí 'for, because', following what appears to be the normal practice of Vedic Prose. The deviation from that practice in (ii) seems most naturally explained as due to the influence of (i) in the immediately preceding paragraph. (It is of course possible that 'dittological' structures of this sort formed the basis for the post-Vedic extension of causal íti to 'external', 'objective' contexts.)

- (i) ... tām ha sma tām purā brāhmaṇā nā taranti ānatidagdhā agnīnā vaiśvānarēṇa íti (ŚB 1.4.1.14)
'that (river) the earlier brahmins did not use to cross (think-ing/because) "A.V. has not burned it over"'
- (ii) ... tād ha ākṣetrataram iva āsa ... āsvaditam agnīnā vaiśvānarēṇa íti (ibid.15)
'at that time it (= the area near the river) was quite uncultivated, because A.V. had not tasted it'
- (iii) ... sū āpi ... sām iva evā kopayati tēvat śītā ānatidagdhā hí agnīnā vaiśvānarēṇa (ibid.16)
'that (river) roars through (the area), as it were, so cold (is it), because A.V. has not burned it over'

²⁵For most of the abbreviations see section 3. In addition, note that R = rare, C = common, F = frequent. Also, I = íti-initial, F = SPEAK-final, E = Embracing quotative; G = general frequency (for all quotative structures). (For G, the frequency rating is made in comparison to competing constructions; for I, F, and E, it is between these three constructions only.) Finally, the names of the various sub-types of SPEAK are given only in terms of their first three letters.

²⁶The data are taken from the Thesaurus, s.v. inquam.

²⁷I am not, however, convinced of the usefulness of the Sanskrit evidence cited by Joseph: As far as I can see, iva 'like, as' never has any meaningful quotative value, comparable to that of íti or other quoted-speech markers.

²⁸Unless otherwise indicated, examples are taken from the selections in Sturtevant 1935. References to these are by descriptive title, followed by section and line number. For ease of exposition I give a quasi-phonetic interpretation of the syllabic transcription, without any vowel length indications. And to more clearly set off QUOTES, I make no distinction in underlining between Sumerograms and other portions of the text.

²⁹For Avestan I rely on the evidence of the Romanized portions of Reichelt's (1909 and 1911) selections. In addition I have worked through the Gāthas and the Hymn to Mithra in their entirety. For these I have used the editions of Humbach (1959) and Gershevitch (1967). To save space, I have in many cases indicated the location of QUOTE merely in the glosses.

³⁰For other references, cf. Bartholomae 1904, s.v. uiti.

³¹The interpretation of this passages seems to be difficult.

³²In fact, RV bād (once bāḍa) has been connected with Av. bāt, bāōa; cf. e.g. Debrunner 1957:92 with references. Note however that Bartholomae (1904, s.v.) points out that bāt is a hapax legomenon, the usual form being bā. Moreover, on the Sanskrit side, one would need to account for the retroflex, not dental stops. Presumably, however, this could be done in terms of contamination from the ritual interjections vāsaṭ, śrausaṭ, for which see Wackernagel 1896:41, 172, etc.

³³Except for the ambiguous (103) above, I have not noted any such examples with iθa 'thus'. The closest thing would be passages like iθa āt yazamaidē ahurēm (Y 37.1, sim. Y 39.1,3) 'thus we worship A.', without QUOTE (or any other obvious referent for iθa).

³⁴I am grateful to my colleague, Frank Gladney, for providing information on the use of the Slavic constructions.

³⁵Cf. the OED, s.v. quotha

^{35a}Except for Old Persian which, however, is attested only in royal proclamations, with very little opportunity for the use of quotational constructions.

³⁶Also Latin occasionally has ita 'thus' with SPEAK. However, the examples in the Thesaurus (s.v.) seem to be generally followed by indirect (infinitival or dependent-clause) structures, as in ita laudabunt: bonum agricolam (acc.) 'they will praise him thus, (as being) a good farmer ...'

³⁷These examples are taken from Riemschneider 1969:162-3.

³⁸Friedrich's presentation does not make it possible to be absolutely certain as to which of the three initial words means 'thus, in this way'.

³⁹I apologize for the perhaps unconventional transliterations of Jäschke's Tibetan-script examples.

⁴⁰An appropriate conclusion to this paper might consist of the revival of an obsolete, quasi-quotational English expression, found in books of the 16th century: Finia, quoth Hans Henrich Hock.

ABBREVIATIONS OF TEXTUAL REFERENCES

Avestan: V = Vidēvdāt; Y = Yasna; Yt. = Yasht.

Sanskrit: AV = Atharva-Veda; JB = Jaiminiya Brāhmaṇa (Caland's selections);

KS = Kāṭhaka Samhitā; MS = Maitrāyaṇī Samhitā (non vidi); RV = Rig-Veda;
SB = Satapatha Brāhmaṇa; TS = Taittirīya Samhitā; VS = Vājasaneyī Samhitā.

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SYNTACTIC VARIATION AND LANGUAGE CHANGE: EASTERN AND WESTERN HINDI

Yamuna Kachru

This paper presents a brief report on two selected topics from on-going research investigating syntactic variation in Modern Standard Hindi (hereafter, Hindi) as spoken in the Eastern and Western regions of the Hindi-speaking area.¹ The two constructions under focus are the possessive and the ergative. The Eastern and the Western varieties show a marked difference in both these constructions. These differences can be traced to contact with other languages/dialects of the area. Furthermore, they seem to be indicators of syntactic change in progress. The observed patterns of variation raise several important questions with regard to the issues of standardization and medium of instruction in the Hindi area.

0. Introduction

Geographical variation in language has always been one of the main interests of linguists. Very little² reliable information, however, is available on the varieties of Hindi.² The research discussed below, initiated in 1982, is the first systematic attempt to determine the range of variation in selected aspects of the syntax of Eastern and Western Hindi. I will limit myself here to a discussion of two syntactic topics only: the possessive and the ergative constructions. There are two main reasons for this. First both of these have been described in detail in tradition grammars as well as modern linguistic analyses (e.g., in Guru 1920, McGregor 1972, Sharma 1958, Kachru 1969, 1980, Pandharipande 1981a, and Pandharipande and Kachru 1977). Second, traditional grammars as well as modern linguistic descriptions exhibit awareness of regional variations in these two constructions (e.g., Vajpeyi 1958, Kachru 1980, among others).

The main purpose of this paper is to demonstrate that regional variation in Hindi has arisen due to the influence of the various mother tongues that Hindi is in contact with in these regions. Furthermore, this variation is ushering in a process of broader syntactic change in Hindi.

The paper is organized as follows. Section 1 outlines the grammatical description of the possessive construction, presents the findings of my research and discusses the implications of these findings. Section 2 does the same for the ergative construction. The concluding section suggests further directions of research on variation in Hindi.

The data for this study consists of questionnaires filled out by 46 graduate students of Jawaharlal Nehru University, Delhi. The regional distribution of the respondents is as follows: 18 from Eastern Uttar Pradesh and Bihar, 28 from Western Uttar Pradesh, Delhi, and contiguous areas. In addition, ten oral interviews were conducted by me in Patna and Dhanbad, Bihar. The subjects interviewed were doctors (3), engineers (2), college/university professors of social sciences (3), and lawyers (2). All were born, raised, and educated in Bihar.

1. The Possessive Construction

According to the information available from grammars and more recent descriptions of the construction, it has the following characteristics (Kachru 1969, Pandharipande 1981):

I. Possession is expressed in Hindi by the use of the genitive, locative, or dative postposition with the possessor noun and the verb hona 'be or becomes'.⁵ The possessed noun controls agreement in the sentence. For example, consider the following sentences.

1. raam kii do betiyāā thīī
Ram of two daughters were
Ram had two daughters.
2. raam ke do bete the
Ram of two sons were
Ram had two sons.
3. raam ke paas do kaarē hai/thīī
Ram near two cars are/were
Ram has/had two cars.
4. raam ke paas do makaan hai/the
Ram near two houses are/were
Ram has/had two houses.
5. raam ke paas ek kar/makaan hai
Ram near a car/a house is
Ram has a car/house.

The possessor raam is followed by the genitive postposition kAA in sentences 1-2 and by the locative postposition ke paas in sentences 3-5. The verb hona 'be' or 'become' is in the past tense in 1-2, and both the genitive postposition and the verb agree with the possessed nouns in terms of number and gender. In 3-5, the postposition is invariable but the verb shows similar agreement features (only number in the present, both number and gender in the past).

II. The distribution of the genitive (kAA or invariant ke 'of'), locative (mē, ke paas 'in, near') and dative (ko 'to') postpositions in the possessive construction is as follows:

- a. If the possessor is animate and the possessed is either animate or denotes kinship or body parts, the postposition is ke (kAA is also acceptable);
- b. If the possessor is animate and the possessed is concrete, the postposition is ke paas 'near' (kAA is also acceptable);
- c. If the possessor is animate and the possessed is abstract, the postpositions are mē 'in' or ko 'to' - mē if the possessed denotes a permanent characteristic or property, ko if it is transitory.⁴

The questionnaire that I used to investigate variation in Hindi was designed to determine the range of the following postpositions in Eastern vs. Western Hindi: the genitive kAA, the invariant ke and the dative ko to indicate kinship. I concentrated on these postpositions for the following reasons. First, even in written standard Hindi, both ke and ko are used to denote kinship in literary works from the Eastern region, e.g., consider the following sentences from Shukla 1903.

6. is putr ke sivaay unhē koi aur santaan na thii
this son except him to any other offspring not was
He had no other offspring except this son.
[unhē=unko 'him to']
7. bangaalii mahaashay ke ek putr thaa
Bengali gentleman of one son was
The Bengali gentleman had one son.

The dative ko and the invariant ke are used in 6 and 7 respectively to denote the same relationship.

Second, grammarians such as Vajpeyi have very emphatically characterized this use of the dative postposition as ungrammatical and inappropriate (1958, pp. 151-152, 228-229, and 374-375). Since Hindi is the medium of instruction in schools and colleges and is becoming increasingly so even at the university level, it would be reasonable to assume that most speakers would at least agree in their judgments about the form characterized as the grammatical and appropriate form. The sentences on the questionnaire to determine the occurrence of these postpositions were as follows.⁵

- 8a. raam baabuu ke ek hii beṭaa hai
Ram Babu of one only son is
- b. raam baabu ko ek hii beṭaa hai
Ram Babu of one only son is
- c. raam baabuu kaa ek hii beṭaa hai
Ram Babu of one only son is
Ram Babu has only one son.
- 9a. mittalji ke ek hii beṭii hai jiskaa naam ushaa hai
Mittalji of one only daughter is whose name Usha is

- b. mittalji ko ek hii beṭii hai jiskaa naam ushaa hai
Mittalji to one only daughter is whose name Usha is
- c. mittalji kii ek hii beṭii hai jiskaa naam ushaa hai
Mittalji of one only daughter is whose name Usha is
Mr. Mittal has only one daughter whose name is Usha.
- 10a. kal hii Shriimatii Shrivaastav ke ek beṭii huii
yesterday only Mrs. Srivastav of one daughter came to be
- b. kal hii Shriimatii Shriivaastav ko ek beṭii huii
yesterday only Mrs. Srivastav to one daughter came to be
- c. kal hii Shriimatii Shriivaastav kii ek beṭii huii
yesterday only Mrs. Srivastav of one daughter came to be
A daughter was born to Mrs. Srivastav only yesterday.

Based on the grammatical descriptions, one would expect the following patterns of occurrence in the two regions.

11. East: ko (alternant kAA)
West: ke (alternant kAA)

Instead, the following surprising patterns emerge from the data I have collected.

12. Patterns	8-10 a	8-10 b	8-10 c	Mixed	
				8 and 10b 9c	8 and 9c 10b
No. of respondents who use these consistently	4	7	13	5	14

Three respondents did not fit any of the above patterns: one respondent marked 8a, 9c, and 10b grammatical and the rest ungrammatical, and the other two respondents marked 8c, 9c and 10a grammatical.

The b sentences were identified as belonging to the variety spoken by the people from Bihar and or Eastern Uttar Pradesh by the following number of respondents.

13. No. of S	8b	9b	10b
No. of respondents	13	12	9

Out of the 18 speakers from Bihar/Eastern Uttar Pradesh, 5 did not identify with any group of speakers the forms they did not use themselves, 4 identified all b sentences as occurring in Hindi spoken in Bihar and 2 identified only 8b and 9b as such. Out of the 27 respondents from other parts of the Hindi-speaking area, 8 did not identify the forms they themselves did not use and 6 identified all b sentences as occurring in the variety spoken in Bihar.

The total range of data indicates the following: respondents from Delhi and Western Uttar Pradesh prefer the genitive postposition kAA; respondents from Eastern UP and contiguous areas of Bihar (Western) prefer 8c, 9c, and 10b; and respondents from other parts of Bihar prefer 8b, 10b, and 9c. Note that this results in two subvarieties: one in which ko is used only for non-stative (sentence 10), the other in which the genitive showing agreement features is preferred for denoting kinship with a female (sentence 9). The two differ only with respect to denoting kinship with a male: one subvariety uses the genitive, the other the dative. For the non-stative (sentence 10), both prefer the dative.

What is clear from the above discussion is that the postposition ko is used with relatively greater consistency by speakers from Bihar and Eastern UP as compared to the invariant ke by speakers from the Western region. The low use of ke and the greater use of the genitive kAA seems to signal a syntactic change in progress whereby the distinction between the so-called inalienable vs. alienable possession is further weakening in the entire Hindi-speaking region.

One plausible explanation for this pattern of usage is as follows. The languages/dialects spoken as mother tongues in Eastern Uttar Pradesh and Bihar do not make a distinction between the genitive and the dative consistently.⁷ Several of them have a form ke which is used both as a genitive and as a dative postposition. Thus, the distinction between genitive and dative may not seem so crucial to speakers from these areas. In addition, all these dialects/languages as well as Hindi have a dative subject construction (see Verma 1976 for details of this construction in a number of South Asian languages). The use of the dative in the possessive construction thus leads to a greater unity of construction types in that most non-volitional constructions (whether stative or inchoative) end up with a dative subject (Kachru 1981, Pandharipande 1981). The languages to the east, such as Bengali, use the regular genitive forms in -r for expressing possession.

The distinction between the ṣaṣṭhī vibhakti and the sambandha pratyaya that characterized the Sanskrit constructions was lost in the Eastern NIA languages so that both 'x has a son' and 'x's son' have the same genitive marker. In view of this, the fact that the Eastern variety of Hindi does not use the invariant ke which is claimed to be analogous to the ṣaṣṭhī vibhakti of Sanskrit (Vajpeyi 1958) is not surprising. The impending loss of the distinction between ke and kAA in the Western variety, however, seems to signal a syntactic change that needs further investigation.

2. The Ergative Construction

The ergative construction has been described in detail in Pandharipande and Kachru 1977. The major characteristics of the construction are as follows.

I. The agent-subject of a transitive verb in perfective is followed by the ergative postposition ne and the verb ceases to agree with it;

II. if the DO is unmarked, the verb agrees with it;

III. if the DO is marked with the postposition ko, the verb is in neutral agreement, i.e., it is in the third person masculine singular form; and

IV. there are some intransitive verbs that govern the ergative and there are some transitive verbs that do not; in addition, some transitive verbs can occur in constructions with or without the agent-subject in the ergative.

In order to determine the use of the postposition ne, the following items were included in the questionnaire.

12a. ham ne sab kitaabē parh lii haf, tum le jao
we all books read took have you take go

b. ham sab kitaab parh liye haf, tum le jao
we all book read took have you take go
We have read all the books, you take them.

13a. raaju ne mujhe koi kitaab nahī dii
Raju me any book not give

b. raajuu hamko koi kitaab nahī diyaa
Raju me any book not gave
Raju did not give me any book.

14a. hamne usse caar kitaabē māāgii, usne ek bhii nahī dii
we him four books asked he one only not gave

b. ham usse caar ṭho kitaab māāge, u eko nahī dihis⁸
we him four book asked he one not gave
even
We asked him for four books, he didn't give us any.

The results are as follows⁹: 39 respondents marked the a sentences grammatical, 3 the b sentences; 4 gave a mixed response. Out of the 18 respondents from Bihar/Eastern Uttar Pradesh, 10 favored the a sentences, 1 respondent the b sentences and 7 gave a mixed response. Out of the 10 who favored the a sentences, 8 identified the b sentences as used in Bihar. Out of the non-Bihari respondents, 23 identified the b sentences with Bihar, 2 with Bihar/Uttar Pradesh and 8 with Uttar Pradesh. It is clear that the b sentences are overwhelmingly identified with Bihar by both the Biharis and others.

Whereas the use of ne in the Eastern variety is unstable, it is expanding in the Western variety. Item 15 was designed to test this. The obligative construction exemplified by 15 requires a dative subject.

- 15a. kal hamne sinemaa jaanaa thaa, par nahī jaa sake
 yesterday we movie had to go but not go could
- b. kal hamē sinemaa jaanaa thaa, par nahī jaa sake
 yesterday we movie had to go but not go could
 Yesterday we intended to go to the movies but we couldn't go.

Although the respondents overwhelmingly marked the a version ungrammatical, 27 identified it with Panjabi speakers.¹⁰ What is interesting is that 2 respondents marked both a and b versions grammatical and 3 marked only a grammatical. All the five respondents who marked 15a grammatical came from Delhi and surrounding areas. Thus, the ergative marker ne is spreading to the obligative construction exemplified by 15 in at least one part of the Western region, the region in direct contact with Panjabi.

Note that the acc/dat postposition is nū in Panjabi, ne in Kauravi (spoken northeast of Delhi) and nai in Hariyanwi. It is, therefore, reasonable to assume that the spread of ne to the obligative construction in Hindi is due to contact with these languages and dialects. Furthermore, according to Newton 1896, the instrumental nai was used with the subject of an infinitive to denote necessity, obligation, purpose or wish. It is quite likely that this construction still exists in some varieties of Panjabi. The apparent phonological similarity of nai and ne may also play a role in the spread of ne to the obligative construction in Hindi as currently spoken in this region.

3. Conclusion

The questionnaire used in this research was broad in scope in that it included several topics from Hindi grammar. In order to arrive at firm conclusions with regard to the syntactic change in progress tentatively suggested above, much more detailed work needs to be done. First, the entire range of possessive constructions, including all possible combinations of possessor-possessed and postpositions needs to be investigated. Secondly, many more locations and types of populations need to be surveyed. According to Pandharipande (personal communication), the use of the invariant ke to indicate kinship is restricted to the older generation in Nagpurī Hindi and Hindi as spoken in Madhya Pradesh; and the younger generation uses consistently either kāa or ko. There are no mixed patterns in the varieties investigated by her. It would be interesting to determine what the isoglosses would be for the patterns in 12. The same is true of the extension of ne to the one obligative construction included in the questionnaire. As far as I am aware, ne is not used with the obligative parnaa or caahiye in any variety of Hindi. Even so, all these issues need to be investigated further systematically.

The marked deviation from the standard in the Eastern variety has larger implications for the issues of standardization and medium of instruction. All the interviewees from Bihar were consistent in rejecting

the standard forms in their own speech. Their reason for doing so was that it sounded artificial. The question naturally arises if it is fair to expect school children to write standard Hindi when they grow up hearing and speaking the Eastern variety. Note that the ergative construction affects a wide domain in that it determines verbal agreement patterns. It would be interesting to investigate the rate of failure in Hindi in the schools and colleges of Bihar and Eastern Uttar Pradesh to determine the educational implications of variation in Hindi.

NOTES

¹The Hindi area extends from the east of the river Yamuna in the west to the border of West Bengal in the east and from the Himalayan foothills in Western Uttar Pradesh to the borders of Gujarat, Maharashtra, and Orissa in the south. The areas where Awadhi, Bhojpuri, Magahi, Maithili, Chattisgarhi and Bagheli are spoken are usually included in the Eastern Hindi region. For the purposes of my research, I have excluded Madhya Pradesh and adjoining areas of Maharashtra, as Pandharipande has been studying Hindi spoken in these regions.

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²There is considerable information available on the Dakkhini (Southern variety of Hindi-Urdu (see Kachru 1980a for references.). Pandharipande (1980, 1981, 1982a, 1982b) contain valuable information on Nagpuri Hindi. Sinha 1979 describes some features of Bihari Hindi.

³I am including the invariant ke here among the genitive postpositions.

⁴This account of the postpositions does not take into account certain factors such as status or emotional distance that determine the use of ke vs. ke paas if the possessed is human. See Kachru 1969 and Pandharipande 1981 for a detailed discussion of these.

⁵The numbering of sentences in this paper and on the questionnaire do not correspond.

⁶The numbers in this and subsequent tables and discussions refer to the respondents to the questionnaire only. The subjects interviewed consistently used the dative ko in all the possessive constructions (i.e., 8b, 9b, and 10b).

⁷The shared postpositions for accusative, dative and genitive are as follows:

Awadhi: ka/kaa
 Magahi: ke
 Bhojpuri: ke/kē

In addition to these, there are other postpositions that mark the above case functions in these languages. Their distribution is determined by complex factors.

There is a great deal of syncretism in the genitive and dative markers in the entire course of the historical development of the NIA languages. For details, see Chatterjee 1970, pp. 751-762.

⁸The use of ham 'we' for maī 'I', and the forms eko and dihis instead of ek bhī 'even one' and diyaa 'gave' respectively are not relevant to this discussion.

⁹The numbers refer to the respondents to the questionnaire only. The interviewees all preferred the b versions, even though they characterized the a versions as standard.

¹⁰The numbers refer again to the respondents to the questionnaire only. The interviewees all characterized the a version as ungrammatical, and the b version as used by Panjabis/speakers from Delhi.

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COUNTERACTING FORCES IN LANGUAGE CHANGE: CONVERGENCE VS. MAINTENANCE

Rajeshwari Pandharipande

This paper focuses on the language contact situation in Central India where centuries of stable Marathi-Hindi bilingualism has resulted in the convergence of the languages in contact. The aim of this paper is (a) to discuss mutual borrowings in Hindi and Marathi, (ii) to show that the process of borrowing abides by certain linguistic constraints, and (iii) to argue that these constraints can be viewed as devices or forces which prevent a merger of the languages in contact and thereby permit them to maintain their independent linguistic identity. It is suggested that the sociolinguistic context of the situation in central India further supports the above hypothesis.

1. Introduction. It is a well-known fact that bilingualism provides a language contact situation which results in the convergence of languages spoken by bilinguals. Gumperz (1964, 1968), Haugen (1953), Kachru (1978, 1980), Clyne (1972), Pandharipande (1978, 1980, 1981, 1982) among others, have discussed a variety of questions related to the form and function of bilingualism and implications for the languages spoken by bilinguals. It is evident from the above studies that questions such as which of two languages would borrow more linguistic material, and which of the two would maintain its independent identity are determined by the function(s) of the languages in society. For example, a relatively less prestigious language would borrow more than the other. Similarly, a language shared by the whole community would have better chances of maintaining its identity than one shared by only a small fraction of the society.

If the above hypothesis is correct, then it follows that: (a) when both languages spoken by bilinguals enjoy similar prestige in the society, (b) when each has a definite function/functions in the society, and (c) when both languages are shared by a whole community (i.e., when the whole community is bilingual), then we would expect (i) both languages to equally borrow from each other, (ii) both languages to undergo change, and (iii) both languages to maintain their independent identity.

The aim of this paper is to discuss mutual borrowings in Hindi and Marathi and to point out that these borrowings support the hypothesis of the linguistic convergence of languages in contact, to show that the process of borrowing abides by certain linguistic constraints, and to argue that these constraints can be viewed as devices or forces which prevent a merger of the languages in contact and thereby permit them to maintain their independent linguistic identity.

Before I discuss the language change phenomenon, a note on Hindi-Marathi bilingualism in Central India (Nagpur area) is in order. A majority of the people in the Nagpur area are bilinguals. Due to centuries of mutual contact of Hindi and Marathi in this area, linguistic convergence of Hindi Marathi has taken place. Consequently, these languages spoken in this area are known as Nagpurī Hindi (NH) and Nagpurī Marathi (NM). While NH shows the influence of Marathi, NM shows the influence of Hindi. Linguistic features borrowed from Marathi into Hindi mark NH separately from Hindi spoken elsewhere, i.e., Bihar, Uttar Pradesh, etc. Similarly, the linguistic features borrowed from Hindi into Marathi mark NM separately from Marathi spoken elsewhere, i.e., Khandesh, Pune, etc. In addition to marking "regional" varieties in Central India, NH and NM represent cultural as well as emotional identity of the people in the Nagpur area.

Although the linguistic convergence of Hindi and Marathi is seen at various linguistic levels such as phonology, morphology, syntax, semantics, etc., the focus of this paper primarily focuses on the convergence phenomenon in the area of (morpho) syntax.

2. Language Change: Nāgpurī Marathi. In earlier papers (1980, 1981) I have discussed the linguistic changes that Hindi and Marathi have undergone in the Nagpur area. I will briefly recapitulate these changes here. Examples 1-21 point out borrowings from Hindi into Marathi at different linguistic levels, while examples 22-55 illustrate borrowings from Marathi into Hindi.

As mentioned above, the borrowings from Hindi into NM are not shared by other varieties of Marathi. In the following discussion I will compare NM with one of the major varieties of Marathi, i.e., Puṇerī Marathi (PM) a variety of Marathi, spoken near Pune. The reason for choosing PM is that (i) Marathi-Hindi bilingualism is not widespread in the area (around Pune) where PM is spoken and (ii) PM has traditionally been considered as "standard Marathi".¹ Let us briefly consider the borrowings from Hindi into Marathi.

2.1 Vocabulary. Notice examples 1-4. As can be readily seen, Nagpurī Marathi (NM) shares vocabulary items with Hindi, while Puṇerī Marathi (PM) does not.

	a PM	b NM	c Hindi	d Gloss
1. Nouns	a) ghar b) lāz	makān śarm	makān śarm	'house' 'bashfulness'
2. Adjectives	a) rikāmā b) veḍā	khālī pāgal	khālī pāgal	'empty' 'crazy'
3. Verbs	bhī-ṇe	ḍar-ṇe	ḍar-nā	'to fear'
4. Adverbs	ajibāt	bilkul	bilkul	'at all'

2.2 Compound/Conjunct Verbs. Examples 5 and 6 show that NM forms compound verbs in the same manner as Hindi. In PM, however, certain combinations such as gheun gheue (take-take) 'to take for oneself' or mhaṇum depe (say-give) 'to say for someone else' are blocked. The conclusion is that NM has borrowed this pattern from Hindi.

	a PM	b NM	c Hindi	d Gloss
5.	*gheūn gheue take take	gheūn gheue take take	le lenā take take	'to take for oneself'
6.	*mhaṇūn depe say give	mhaṇūn depe say give	kah denā say give	'to say out'

Example 7 shows that NM forms certain conjunct verbs such as ghussa karpe (anger-do) 'to get angry' just like Hindi, while PM has very different formations.

	a PM	b NM	c Hindi	d Gloss
7.	rāgāvṇe	ghussā karpe anger do	gussā karnā anger do	'to get angry'

2.3 Adverb Formation. Now let us consider examples 8 and 9. Both in Hindi and Marathi an adverb can be derived by adding instrumental suffixes (i.e., se 'by, with' (Hindi) and ne 'by' Marathi to a noun). However, example 8a shows that not all adverbs are derived by this process.

	a PM	b NM	c Hindi	d Gloss
8.	sāvkāṣ	ārāmā-ne leisure-by	ārām-se leisure-by	'leisurely'
9.	kaṣṭā-ne difficulty-by	muṣkilī-ne	muṣkil-se	'with difficulty'

As examples 8 and 9 show NM takes a middle position between PM and Hindi by using the PM adverbial suffix -ne in combination with the Hindi nouns. However, in 8 NM differs from PM by having a suffixal adverbial.

2.4 Progressive construction. Now consider examples 10-12. NM has borrowed the progressive construction in 11 from Hindi (example 12).

10. PM: tī gāpa mhaṇte āhe
 she song sing-prog is
 She is singing a song.

11. NM: tī gāpa mhaṇūn rāhilī āhe
 she song sing prog. is
 She is singing a song.
12. Hindi: vah gānā gā rahī hē
 she song sing prog is
 She is singing a song.

Notice that in NM (example 11) and Hindi (12) the progressive aspect is expressed by the perfective form of the verb rah ne 'to be' (Marathi) and rahnā 'to be' (Hindi). This construction is not employed in PM. Instead, PM expresses the progressive aspect of a verb by adding /t/ and a vowel /e/ to the verb stem as is evident from example 10.

2.5 Negation in future tense. Now let us consider the negative construction in NM. Consider examples 13-16.

13. PM: āmhi udyā mumbaīlā zāū
 NM: we tomorrow Bombay-to will go
 We will go to Bombay tomorrow.
14. Negation
 PM: āmhi udya mumbaīlā zāpār nāhi
 we tomorrow Bombay to will go not
 We will not go to Bombay tomorrow.
15. NM: āmhi udya mumbaīlā nāhi zāū
 we tomorrow Bombay-to not will go
 We will not go to Bombay tomorrow.
16. Hindi: ham kal bambaī nāhi jāēge
 we tomorrow Bombay not will go
 We will not go to Bombay tomorrow.

A sentence in the future tense is negated in PM by changing the form of the verb (i.e., zāū (13) --> zāpār (14)) which is then followed by the negative verb nāhi 'not' (Damle (1911:696)). (Notice examples 13 and 14). The future negative construction described in example 15 is not acceptable in PM. NM has borrowed this construction from Hindi (16). Notice that unlike 14 both NM and Hindi place the negative words nāhi (M) and nahi (H) before the verb and the main verb does not change its form.

2.6 The pāhiḥ 'want' construction. Examples 17-21 show another pattern of the negation involving the verb pāhiḥ 'to want'.

17. PM: malā chāhā pāhiḥe
 NM: I-to tea want
 I want tea.

18. PM: malā čahā nako
 I-to tea do not want
 I do not want tea.
19. NM: malā čahā nāhi pāhiṭe
 I-to tea not want
 I do not want tea.
20. Hindi: muḷhe cāy cāhiye
 I-to tea want
 I want tea.
21. Neg: muḷhe cāy nahī cāhiye
 I-to tea not want
 I do not want tea.

PM negates the verb by substituting the negative verb nako 'do not want' (example 18) for the verb pāhiṭe 'to want' (17). In contrast to this, NM retains the verb and places the negative word nāhi 'not' before the verb - a pattern identical to the one in Hindi, cf. examples 20 and 21.

3.0 Borrowings from Marathi into Hindi. In earlier papers (1980, 1981) I have discussed the linguistic material borrowed from Marathi into Hindi. These borrowings are observed at various linguistic levels. The major reasons for treating these features as borrowings from Marathi into NH are as follows: (a) NH is the only variety of Hindi which has these features, (b) these features are typically shared by Marathi, and (c) the widespread bilingualism in the Nagpur area has provided a language contact between Marathi and Hindi.

3.1 Emphatic particle /c/. Let us consider examples 22-24 which illustrate the borrowing of the emphatic particle /č/ 'only' from Marathi into Hindi. Hindi (both SH and NH) has an emphatic particle hī 'only' which emphasizes the immediately preceding word/phrase, etc. Consider example 22.

22. SH: vah laṛkā hī āyā thā
 NH: that boy only came aux.
 That boy (emphatic) had come.
23. NH: vah laḍkēc āyā thā
 that boy-emph came aux.
 That boy (emphatic) had come.
24. M: to mulgēc ālā hotā
 that boy-emph came aux.
 That boy (emphatic) had come.

In addition to hī 'only' NH has another emphatic particle, i.e., /c/ which is borrowed from Marathi (example 23). Notice that /c/ is the emphatic particle in Marathi (24).

3.2 Conditional construction. Marathi has a conditional construction (example 27) where the auxiliary verb asne 'to be, to remain' is used. SH does not allow the use of the auxiliary rah-nā 'to be, to remain', which is the semantic counterpart of the Marathi verb asne 'to be' (example 26). However, NH allows both types of conditional constructions, i.e., the one with the auxiliary verb rahna 'to be, to remain' (example 25) and the one without it (26).

25. NH: agar vah āyā rahtā to mī us se milā rahtā
 if he came be aux. then I him to met to be aux.
 If he would come I would meet him.
26. SH: agar vah ātā to mī us se miltā
 if he come then I him to meet
 If he would come I would meet him.
27. M: to ālā astā tar mī tyālā bhetlō astō
 he came be aux. then I him-to met to be aux.
 If he would come, I would meet him.

3.3 Pronoun apan 'we'. The pronoun apan 'we' of NH is functionally identical to the Marathi pronoun apañ 'we'. On the other hand, apan 'we' is absent in SH. SH uses the pronoun ham 'we' instead. As a result of this borrowing, NH has two pronouns, i.e., apan and ham 'we', which convey the same meaning. Consider examples 28-32.

28. NH: dīdī, apan kal bāzār jāēge
 sister we tomorrow market will go
 Sister, we will go to the market tomorrow.
29. NH: apan ko sī bātē zarā bhī pasand nahī
 we to such things a little also like not
 We do not like such things at all.
30. M: tāi, āpañ udyā bāzārāt zāū
 sister we tomorrow market-in will go
 Sister, tomorrow we will go to the market.
31. āplyālā aśā goṣṭī aḷibāt āvaḍat nahīt
 us-to such things at all like not
 We do not like such things at all.
32. SH: dīdī, kal ham bāzār jāēge
 sister tomorrow we market will go
 Sister, we will go to the market tomorrow.

Notice that NH uses apan 'we' (37 and 38) where Marathi uses āpañ 'we' (30 and 31), while SH uses ham 'we' (32). The borrowing of apan 'we' in NM has affected the syntactic function of the pronoun ham 'we' in NH.

The borrowed pronoun apan 'we' does not replace ham 'we' in all the contexts. Consider the following examples which show that when the possessive postpositions kā, ke, and ki follow the pronoun ham 'we' the use of ham 'we' is obligatory in both SH and NH.

33. NH: hamāre bacce kal ghar āēge
 SH: *apanke
 *apne
our children tomorrow home will go
Our children will come home tomorrow.
34. NH: hāmāre liye kuch ām bhijvā dījiye
 SH: *apneliye
 *apan ke liye
us for some mangoes have sent
Please have some mangoes sent for us.

Thus in NH ham 'we' is used in contexts such as 33 and 34 and apan 'we' is used elsewhere, while SH uses ham 'we' in all contexts such as in examples 28-34.

3.4 Coercive causatives. Another construction borrowed from Marathi into NH is the coercive causative construction exemplified in 35. SH has only one morphological causative construction as in 37 and lacks the coercive causative construction described in 42.

35. NH: mē ne us ko kām karneko lagāyā
I ag. him to work do-dat. made
I made him (forced him to) do the work.
36. M: mī tyāla kām karāylā lāvla
I him-to work do-dat. made
I made him (forced him to) do the work.
37. SH: mē ne us se kām karwāyā
 NH: I ag. him by work do-caus-past
I made him do the work.

NH has both the coercive causative construction (35) as well as the regular non-coercive construction (37). Marathi has two types of causatives, i.e., morphological and periphrastic. 36 is an example of the periphrastic (coercive) causative in Marathi. Now consider the morphological causative construction.

38. NM: mī tyāc̣yā kaḍūn kām karavto
 PM: I him by work do-cause-to
I make him do the work.

Notice that 38 is similar to 37 in that both express a non-coercive causative construction. Also notice that the coercive (periphrastic) causative construction in NH (35) is a calque of the equivalent construction

in Marathi (36). The dative suffix of Marathi (lā) is substituted by the Hindi suffix (ko) and the auxiliary verb lāvṇe 'to attach' is substituted by its semantic equivalent in Hindi, i.e., lagānā 'to attach'.

3.5 Quotative construction. SH does not have a particular morpheme or word which can be labeled as a quotative marker, instead, it uses a formal complementizer ki 'that'.

39. SH: vah kah rahā thā ki usko kavitaē paṛhnā pasand hī
he say prog. was that to him poems to read like aux.
He was saying that he liked to read poems.

Kachru (1979:76) points out that in colloquial Hindi preposing of the subordinate clause to indicate a quote is common. Kachru (1979) further claims that the Dakhini variety of Hindi-Urdu uses a quotative marker bolke (literally having said). Kachru (1979:74-75) points out that in SH the linking of two sentences by the complementizer ki yields reason or purpose interpretations. Consider the following sentences.

40. SH: vah bāhar nahī niklā ki bāriś ho rahī thī
he out not came that rain happening was
As it was raining, he did not come out.
41. SH: mē rukā thā ki āpse mulākāt kartā calū
I stopped remained that you meeting doing leave
with
I remained here in order to see you before leaving.

The situation in NH is quite different from SH. NH does not use the quotative marker bolke as in Dakhini. Also, it does not use the complementizer ki to mark a quote. Instead NH uses the quotative marker karke (literally 'having done') to carry out the functions of ki in SH (examples 39-41). Consider the following examples.

42. NH: mē āūgā karke bol rahā thā
I will come quot. say prog was
He was saying that he would come.
(Literally, "I will come", thus he said.)
43. NH: bāriś ho rahī thī karke vah bāhar nahī niklā
rain happening was quot. he out not came
It was raining therefore he did not come out.
44. āpse mulākāt kartā calū karke mē rukā thā
with meeting doing leave quot. I stopped remained
you
I remained here in order to see you before leaving.

The quotative marker karke (literally 'having done') in NH is borrowed from Marathi which uses the semantically similar quotative karun (literally 'having done').

45. M: yeĩn yeĩn karũn to ālā nāhĩ
 I will I will quot. he come not
 come come
 After saying "I will come, I will come ", he did not come.

The use of the verb karne 'to do' as a quotative marker is restricted to a context such as in 45 where the quote involves repetitions of the verb. Also karne 'to do' is used as a quotative in an idiomatic expression such as in 46.

46. M: hoy nā kartā²
 yes no doing
 After a little bit of unsurety (literally, saying yes
 and no).

However, the quotative most commonly used in Marathi is mhañun 'having said'. It can replace the verb karne 'to do' in 45 and 46 and is used as a regular quotative in sentences such as 47 and 47a.

47. M: āīca patra ālā āhe mhapūn to sāngat hota
mother's letter come aux. quot. he say -ing
He was saying that mother's letter had arrived.

- 47a. lavkar parat ye mhanūn mū tyālā mhaṭle
 *karūn
soon comeback quot. I to him said
I said to him "come back soon".

The use of karne 'to do' is blocked in 47 and 48. Mhanūn is used to indicate a clause of reason or purpose (Damle 1911:935) which is similar to karke used in NH. Consider examples 48 and 49 - the Marathi counterparts, 43 and 44 in NH respectively.

48. M: pāus paḍet hotā mhanūn mī bāher nighālō nāhī
 *karūn
rain fall -ing quot. I out came out not
I did not come out because it was raining.

49. M: tulā bheṭun zāva mhanūn mī thāmblō
 *karūn
you having met go quot. I waited
I waited in order to meet you.

Notice that the use of the verb karne is blocked in 48. It is interesting to note that the quotative karke in NI is functionally similar to the Marathi quotative mhanun and the complementizer ki in SH. The use of ki is totally blocked in NI. Karke (NI) is semantically similar to the Marathi quotative karun.²

3.6 Obligational construction. Examples 50-52 illustrate the obligational construction borrowed from Marathi into Nagpuri Hindi. Notice that both NH and Marathi use the infinitive + possessive manner as in NH, jānekā (50) and in M zāyca (51), respectively. However, SH uses only the infinitive form of the verb as in 52. While SH does not allow constructions like 50, NH allows both 50 and 52.

50. NH: mujhe bambaī jānekā hē
 me-to Bombay go-poss. aux.
 I have to go to Bombay.
51. M: malā mumbaīlā zāyca āhe
 I-to Bombay to go-poss.aux.
 I have to go to Bombay.
52. SH: mujhe bambaī jānā hē
 NH: me-to Bombay go aux.
 I have to go to Bombay.

3.7 Abilitative construction. The abilitative construction borrowed from Marathi into Nagpuri Hindi is illustrated in examples 53-55.

53. NH: mujhe angrezī paḍhneko ātā hē
 me-to English read-dat. comes aux.
 I can read English.
 (Literally, Reading English comes to me).
54. M: malā ingraḥī vācāyā yeta
 I-to English read-dat. comes
 I can read English.
55. SH: mujhe angrezī paṛhnā ātā hē
 me-to English read comes aux.
 I can read English.

While SH uses the infinitive form of the verb as in the paṛhnā 'to read' of 55, NH and Marathi use the infinitive followed by the dative case marker ko in 53 (NH) and lā in 54 (M).

4. Maintenance of Linguistic identity. The discussion so far has shown that both Marathi and Hindi spoken in the Nagpur area have borrowed from each other and as a result, both languages have undergone change. The mutual borrowings in Marathi and Hindi support the hypothesis of linguistic convergence of languages in contact. Two major questions need to be discussed in this context. First, whether there are any constraints on borrowing or whether the mutual borrowings are random and irregular. Second, if there are constraints on borrowing, what is the function (linguistic/extralinguistic) of these constraints. In what follows, I will discuss the phenomena which can be viewed as constraints on language change in the above context.

A close examination of the preceding sections 2.1-3.7 shows that the borrowing abides by the following three constraints, i.e., (i) languages in contact do not exchange identical linguistic units, (ii) borrowing is blocked if it creates ambiguity, and (iii) borrowed material does not get fully nativized. In what follows I will examine these constraints and argue that together they represent constraints on change and a counteracting force which constrains convergence of languages in contact.

4.1 Lack of exchange of identical linguistic units. The borrowings discussed in sections 2.1-3.8 point out that the languages in contact do not exchange identical linguistic units. For example, NM has borrowed a progressive construction from Hindi. However NH has not borrowed one from Marathi in exchange. Mutual exchange of identical linguistic units is totally blocked.

4.2 Ambiguity constraint. Recall section 3.1 examples 22-24. It is interesting to note that NH borrows the emphatic particle /c/ 'only' from Marathi. The question is whether there is any reason why NM fails to borrow the emphatic particle hī 'only' from Hindi. Notice that the borrowing of hī 'only' would create ambiguity in Marathi (examples 56 and 57). Notice that the native Marathi particle hī means 'also' while the Hindi particle means 'only'. Example 58 points out the semantic ambiguity that would result as a result of the borrowing. Similarly, Hindi does not borrow hī 'also' from Marathi for the same reason.

56. M: /c/ 'only', hī 'also'

57. H: /hī/ 'only', bhī 'also'

58. M: jān hī ālā hotā
 John only come aux.
 also
 John only had come.
 also

These examples show that borrowing is blocked if it creates ambiguity.

4.3 Lack of nativization. Another interesting constraint noticed in the above context is that borrowed material does not get completely nativized in the languages, as is evident from the following evidence. Not all the native grammatical processes apply to borrowed material. Thus, the adjective lāzālū 'bashful' can be derived from the native word lāz (60), but the suffix lū cannot be added to the borrowed noun sarm (example 59). Similarly, in NH the second causative cannot be derived from the causative borrowed from Marathi into Hindi (63) while it is derived from the native causative (64).

59. M: śarm 'bashfulness' ---→ *śarmālū 'bashful'
 (borrowing from Hindi)

60. lāz ---> lāzāḷū 'bashful'
(native)
61. Causative: deneko lagānā 'to cause to give'
NH: (borrowed pattern from Marathi)
62. H: dilānā 'to cause to give'
(native)
63. Second causative:
NH: *ḡeneko lagwānā 'to cause X to cause Y to give'
64. NM, SH: dilwānā 'to cause X to cause Y to give'

In section 3.3 it is pointed out that the pronoun apan 'we' (borrowed from Marathi) in NH does not substitute the native Hindi pronoun ham 'we' in every context.

The above constraints on the process of borrowing and on borrowed material share one function in common, i.e., they prevent the merger of Hindi and Marathi into one language. Notice that the exchange of the same linguistic item, the complete nativization of a borrowed item would contribute to lessening the linguistic differences and the loss of the linguistic identity of the languages in contact. Therefore, it is plausible to assume that in a bilingual sociolinguistic context such as the one in the Nagpur area, language change abides by two opposing forces, linguistic convergence and maintenance of the linguistic identity. This argument is further supported by the evidence from phonological data from NM and NH.

The following data shows that as a result of contact with Marathi, NH has lost the retroflex flaps /ɽ/, /ɽh/ which exist in SH but not in Marathi. Thus the retroflex /ɖ/ and /ɖh/ merge with /ɽ/ and /ɽh/ in NH. Let us first consider the loss of the retroflex flaps /ɽ/ and /ɽh/ in NH.

65. SH: /ɖ/, /ɖh/, /ɽ/, and /ɽh/
66. NH: /ɖ/, /ɖh/, \emptyset \emptyset
67. SH: qāl-nā 'to put' -----> 67a. NH: qāl-nā 'to put'
68. per 'tree' -----> 68a. ped 'tree'
69. qhāl 'shield' -----> 69a. qhāl 'shield'
70. paṛh-nā 'to read -----> 70a. paḍh-nā 'to read,
to study' to study'

Notice that SH consistently maintains the contrast between the retroflex stops /ɖ/ and /ɖh/ and the retroflex flaps /ɽ/ and /ɽh/ respectively (examples 67-70). In contrast to this, NH substitutes the retroflex stops /ɖ/ and /ɖh/ for the retroflex flaps /ɽ/ and /ɽh/ respectively (examples 68a-70a). Notice that this loss does not affect the structure of Hindi since the loss of the above flaps does not create ambiguity. The above retroflex flaps do not carry any semantic load in Hindi.

However, Marathi does not lose the lateral flap /ɭ/ as a result of its contact with Hindi which typically lacks it. Notice that the semantic difference between 71-73 and their respective counterparts 71a-73a is due to the fact that while 71-73 use the lateral stop /ɭ/, their counterparts 71a-73a use the lateral flap /ɭ̥/.

71. malā 'to me'	71a. maɭā 'garden'
72. kalā 'art'	72a. kaɭā 'pains'
73. ukal 'disentangle/ solve'	73a. ukaɭ 'boil'

Notice that the loss of the lateral flap would create semantic ambiguity in examples, such as 71-73.

The question may arise then as to why the above languages borrow at all since mutual borrowings make the languages more like each other, especially when languages such as the above borrow even at the cost of complicating their grammatical systems. Notice that Marathi has a native progressive construction. Why does it borrow another progressive construction from Hindi? Similarly, Hindi has a conditional construction. Why does it borrow another one from Marathi?

5. Borrowings: Possible explanations. In the following discussion I will point out that some of the borrowings are justifiable on the grounds of 'gap filling', 'grammar simplification', the principle of 'maximum difference'. However, not all of the borrowings can be explained by the above principles. Therefore, I will argue that in order to provide a unified explanation for the borrowings and the constraints on the borrowings, it is essential to take into account the sociocultural setting of the language contact situation in Central India.

Let us consider the borrowings in section 2.2 which show the formation of new compound/conjunct verbs in NM as a result of the influence of Hindi. The use of the explicators (auxiliary verbs) ghene 'to take' and deṇe 'to give' is already common in Marathi. The use of these explicators in contexts such as 5 and 6 is blocked in PM, and other varieties of Marathi. Examples 5 and 6 show that the influence of Hindi has filled in the gaps in the Marathi compound verb system by providing compound verbs such as 5 and 6 on the model of karun deṇe 'to do for someone else' and karun ghene 'to do for oneself'.
do give

Conjunct verbs are very commonly used also in Marathi. For example,

74.	uṣīr hoṇe delay to become	uṣīr karne delay to do	'to delay'
75.	kāḷjī asṇe worry to be	kāḷjī karṇe worry to be	'to worry'

However, the noun rāg 'anger' does not have such a pair of conjunct verbs, i.e., while PM has rāg yepe 'to become angry', its expected counterpart rāg karpe 'to make angry' is absent. The borrowing of the word ghussa 'anger' (Hindi) regularizes the pattern, by producing ghussa yepe 'to become angry' ghussa karpe 'to get angry' (to choose anger come angry to do to get angry).

Now let us consider the progressive construction borrowed into NM from Hindi (section 2.4). Possible explanations for the above is as follows: In PM, the difference between the simple imperfect and the progressive construction is marginal. For example, compare the following two sentences with each other.

76. present imperfect:

tī gāṇa mhaṇte
she song sings
She sings songs.

77. present progressive:

tī gāṇa mhaṇte āhe
she song sing is (prog.)
She is singing a song.

Notice that the auxiliary āhe 'is' is the only factor which distinguishes 76 from 77. In the spoken language the auxiliary āhe is replaced by a semi-vowel /y/, i.e., mhaṇtey = 'is singing', which brings the two forms, i.e., present imperfect and progressive even closer to each other.

Now compare example 77 with the progressive construction in NM (example 11) borrowed from Hindi. Notice that the additional auxiliary rāhne 'to remain (progressive)' clearly marks the progressive construction separately from the present imperfect construction. Thus by the principle of maximum difference, this construction is readily allowed in the grammatical system of NM. The negative constructions discussed in sections 2.5 and 2.6 can be viewed as the result of simplification of the negation patterns in PM. Recall examples 13, 14, 17, and 18 in PM. While a negative sentence in the future tense requires a change in the verb form plus the insertion of the negation nāhi 'no', negative of the pāhiṇe-construction replaces the verb by the negative verb nako 'do not want' cf. 18. In contrast to this, the pattern of negation in Hindi is simple (16, 20, 21) in that it requires only the insertion of the negation word nahi 'no' before the verb without any change in the form of the verb. By borrowing the negation pattern from Hindi, NM has in fact simplified the system of negation in Marathi.

Let us consider the borrowings from Marathi into NH. Some of the borrowings are explainable on the basis of their 'gap-filling' function. For example recall section 3.5. Hindi lacks quotative markers. Therefore, the borrowing of *kar ke* 'thus' is readily acceptable to the grammar of Hindi. Similarly, the borrowing of the coercive causative (section 3.4) from Marathi into NM is perfectly justifiable on the same basis, i.e., the borrowing of the above fills in the gap of coercive causatives in NH.

Now recall section 3.3. The use of *apan* 'we' in NH instead of *ham* 'we' (SH) on the basis of the pronoun *apan* 'we' in Marathi is justifiable on the basis of the following: the pronoun *ham* 'we' in SH is ambiguous with reference to the hearer, i.e., *ham* 'we' means either 'I + others (excluding the hearer)' or 'I + you' (hearer). In contrast to this, the Marathi pronoun *apan* 'we' unambiguously includes the hearer. Thus its borrowing into NH, is justifiable, since it disambiguates the meaning of the pronoun.

In contrast to the above the borrowing of the conditional (section 3.2), obligational (section 3.6), abilitative (section 3.7) constructions is not justifiable on the grounds of 'gap-filling' or 'grammar simplification', etc. There are constructions equivalent to the above in the borrowing language.

5.1 Sociocultural context: A possible explanation. The preceding discussion clearly points out that there are two counteracting 'pulls' operating on the language change phenomenon, i.e., the 'pull' or 'force' which motivates 'convergence' of languages in contact and the other 'force' which operates as a 'buffer' to prevent total merger of the languages.

In addition to being inadequate (section 5.), an hypothesis which takes into account only the grammatical structures of the languages in contact, totally ignores the role of sociolinguistic function of mutual borrowings in the languages under focus. Sankoff (1980:48) while discussing variation, argues "... the distribution of linguistic features cannot be understood solely in terms of their internal relationships within grammar, but must be seen as part of the broader socio-cultural context in which they occur."

The sociolinguistic attitudes of the people/function of NM and NH in society provide clues for a better understanding of the situation in the Nagpur area. Let us first consider the function of NM and NH. These two are recognized as the regional varieties. Thus they serve as 'codes' for the cultural and emotional identity of the speakers in the Nagpur area, (i.e., *Nagpuri lok* (M) 'people from Nagpur'). Thus NM and NH have a janus-like character. As linguistic systems, they represent a convergence of Marathi and Hindi in the Nagpur area;

as codes they represent the regional identity of the people in that area. Fishman (1972:16) points out "dialects may easily come to represent (to stand for, to connote, to symbolize) other factors than geographic ones."

Bilingualism in the Nagpur area represents the mixture of the Hindi-speaking and Marathi-speaking speech communities. The mutual linguistic influence of Hindi and Marathi has a definite social function in society. The terms Nagpuri Marathi and Nagpuri Hindi certainly indicate those varieties of Marathi and Hindi which (among other features) show a marked influence of Hindi and Marathi, respectively. However, NM and NH do not only represent language varieties, but rather they stand for the people, culture, and society in the Nagpur area. Thus those regional varieties mark the speaker's cultural and social identity.

In Halliday's (1978:51) words those varieties have a certain "meaning potential". The "meaning potential" here is the cultural/social identity of the people in the Nagpur area. If we take into account the social function of these varieties, it becomes clear that these are 'codes' (Hasan 1973:258) which according to Halliday (1978:68) are "types of social semiotic, symbolic orders of meaning generated by social systems". Thus these 'codes' (i.e., NM and NH) transmit underlying patterns of the mixed culture which exist in Central India. The above discussion makes it plausible to assume that it is the mixed culture, bilingualism, and the social system in the area which is responsible for the language change, in terms of the convergence of Marathi and Hindi spoken in the Nagpur area.

Now let us consider the possible motivation for the other side of the picture. Maintenance of separate linguistic identities I think is the motivation for preventing a total merger of the languages. In earlier work (1981) I have pointed out that bilinguals in the Nagpur area have four linguistic 'codes' available to them. The following diagram summarizes the distribution of codes according to their social functions.

Speakers of Marathi L_1 Hindi L_2			
NM	PM	NH	SH
informal contexts (home, peer group, etc.)	formal contexts (school, official correspondence, news media, etc.)	market business transaction	1. interstate communication 2. used mostly as a written language (in school)

Speakers Hindi L₁ Marathi L₂

NH	SH	NM	PM
informal contexts (home, peer group, etc.)	formal speeches, news media, etc.	communication with friends, neighbors	passive competence (fully understood) used only in written form/ rarely spoken

Notice that while NM and NH are used in the 'informal' context, PM and SH are used in the 'formal context'. While emotional identity of Marathi (L₁) and Hindi (L₁) speakers is expressed by NM and NH respectively, their competence in the respective standard varieties (i.e., PM and SH) is important to them. Their competence in their respective standard varieties is essential for a wider communication with the Marathi Hindi speakers in other parts of India. Moreover, the insistence of the bilinguals in the Nagpur area for using the respective standard varieties in the formal contexts indicates that Marathi and Hindi speaking communities (i.e., which use Marathi and Hindi as their L₁, respectively) are aware of their independent linguistic identities and in fact they intend to maintain them. This attitude of bilinguals is at least partially responsible for the resistance to a total merger of the two languages in contact.

The hypothesis in this paper is especially relevant for a better understanding of the form and function of widespread stable bilingualism/multilingualism in India. Recent studies (Masica 1976, Kachru 1980, Hook 1982) provide various points of comparison for the languages spoken in India. These studies are aimed at investigating the similarities across languages which support Emeneau's (1956) hypothesis about India as a linguistic area. The hypothesis proposed here throws light on the other side of the picture, i.e., it points out that there are certain 'buffers' operating as linguistic mechanisms which control a merger of languages in contact. Further investigation is necessary to determine whether the constraints discussed here are applicable to the convergence of other languages in India.

Another question which needs to be discussed is whether the constraints discussed here are applicable to the process of borrowing in general or whether they are restricted only to the mutual borrowing of languages spoken by bilinguals. A large body of data needs to be investigated before any conclusive statement is made.

There are two implicit assumptions in the hypothesis proposed here: (a) when the maintenance of an independent linguistic identity is necessary/important/possible for speakers, then we expect that the constraints proposed here would apply, and (b) even though one of the two languages in contact is more prestigious than the other, the above constraints will operate if the linguistic identity of the languages needs to be maintained.

A great deal of research is necessary in order to either strengthen or falsify these assumptions. For example, the validity of assumption (a) can be well examined in the context of immigrant languages in the U.S.A., such as German, Hindi, Norwegian, etc. Speakers of these languages are generally bilinguals, i.e., they speak English in addition to their native language. It is difficult, though not impossible, for the speakers to maintain their linguistic identity in the U.S.A. where English is used in almost all walks of life, except perhaps in the homes and in a few other social contexts. In this situation, we expect that the above constraints would not operate on the borrowings of English into the native languages spoken by bilingual immigrants.

The validity of assumption (b) can be examined in the context of the borrowing from English into the native modern Indian languages. A majority of speakers of English in India are bilinguals, i.e., they speak English as well as at least one modern Indian language. Kachru (1982) discusses and defines the relative domains of the sociolinguistic function of English and of modern Indian languages. From studies on the bilingual/multilingual setting in India (Kachru 1981, 1982, Pandharipande 1982, and Sridhar 1982), it is clear, that it is necessary to maintain an independent identity of both English and the native Indian languages of the bilinguals. A closer examination of the borrowings from English into Indian languages would provide insights into the applicability of the constraints discussed in this paper.

NOTES

¹The purpose of using the terms Hindi and Marathi in sections 2-3.6 as opposed to SH and PM, respectively, is to show the contrast between Hindi and Marathi in general. No particular variety of Hindi (NH, SH, etc.) or of Marathi (NM, PM, etc.) is represented by the terms Hindi and Marathi.

²It is not clear at this point why NH has borrowed the more restricted quotative karke instead of mhanun which is more commonly used in Marathi. It is interesting to note that a form of the verb karne 'to do' in Marathi is used to convey purpose or cause. Consider the following examples:

- (a) purpose: to hindī śikṣyākartā bhāratālā gela
 he Hindi learn-in order India-to went
 to
 He went to India in order to learn Hindi.

- (b) cause: pēse nāhī yākartā tī śīkat nāhī
 money not therefore he studies neg.
 He does not have money. Therefore, he does not study.
 i.e., does not go to school.

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INFINITIVAL COMPLEMENTS IN OLD FRENCH AND DIACHRONIC CHANGE

Elizabeth Pearce

Morin and St-Amour (1977) claim that all Old French infinitival complements are base-generated VPs and that a similar analysis applies to Modern French. This situation is said to have arisen through the loss of underlying S infinitival complements in Late Latin. The evidence for these claims largely comes from case marking and the placement of clitics. Changes in Modern French are attributed not to change in base structure, but to change in a 'permeability' feature governing the placement of clitic pronouns.

By reexamining the evidence of Old French and comparing it to the structures of Modern French and other Romance languages, this paper comes to rather different conclusions: (a) Evidence supporting surface VP infinitival complements in Old French is convincing, but later developments in French do not support such an analysis. (b) Where Morin and St-Amour claim a differentiation of infinitival complement structures only for Modern French, the evidence shows that it goes back to Old French. (c) These and other findings suggest the need for a reexamination of the historical developments from Latin, via Old French, to Modern French.

0. Introduction

Historical developments in Romance languages show differing resolutions of the forms taken by infinitival complements. This paper will draw on evidence from Old French to consider how infinitival complements in the earliest attested stage of French can be analyzed and how the proposed synchronic analysis then bears on the analysis of the diachronic evolution.

Discussions of developments in infinitival complements in Romance languages focus on the forms of two classes of infinitival complements, represented abstractly in (1) and (2):

(1) NP_a V [NP_a Inf . . .]

(2) NP_a V [NP_b Inf . . .]

The NPs shown in (1) and (2) indicate the role of subject either of a governing verb (= 'V') or of an infinitive complement. The subscripts indicate referential properties of the NPs. In (1) the subject of the governing verb is non-distinct from the subject of the infinitival complement. In (2) the subject of the governing verb and the subject of the infinitival are distinct. Evidence of diachronic change in the surface forms of types (1) and (2) appears in French as well as in other Romance languages.

For type (1), whereas Latin permitted a surface reflex of the subject of the infinitive in the form of a reflexive pronoun (see Section 2 below for further discussion), no such surface reflex appears in any attested stage of French. However, one observable diachronic change for type (1) in French is that, in Old French, pronoun complements of the infinitives were attached to the governing verb, whereas in Modern French such pronoun complements are associated with their infinitive. This change leads to differing analyses for the 2 stages in question

Analyses of stages in the patterns of evolution of type (2) focus, on the one hand, on the emergence of the 'causative' construction, containing a dative-marked subject of the infinitive, as in Mod. Fr. faire faire quelque chose à quelqu'un 'to make (to) someone do something'; and, on the other hand, on the fate of the 'accusative + infinitive' construction, as in Lat. facere eum domum aedificare 'to make him build a house', in which the subject of the infinitive, eum, is marked as an accusative. The causative construction is well attested in the earliest stages of the Modern Romance languages and the accusative + infinitive construction is well attested in Latin. Speculation therefore centres around the emergence of the causative construction in the Romance languages as they develop from Latin and the relative status of the accusative + infinitive construction in subsequent developments. The outcome in Modern French, for example, is that the causative construction is the only possible construction with the verb faire, whereas laisser 'to permit/let/allow' and the perception verbs show competing causative and accusative + infinitive constructions.

This paper will consider the developments outlined above primarily from the point of view of whether the brackets shown in (1) and (2) are to be analyzed as underlying Ss or as underlying VPs and of what either one of these analyses means in terms of the historical developments. The data to be examined, for the most part, will be that of constructions of type (2) in early Old French. I will discuss, in particular, the analysis of Morin and St-Amour (1977) in Section 1, and I will consider their claims as they apply to a systematic collection of data from the earliest stages of Old French in Section 3. In the remaining sections of the paper, I will discuss analyses of modern Romance data which are relevant to the Old French material in question (Section 2) and conclusions which can be drawn on the basis of the possible paths of evolution of French given the available analyses of the historical changes considered in earlier sections (Section 4).

1. The analysis of Morin and St-Amour (1977)

1.0 Morin and St-Amour (1977) claim that all infinitivals in Old French are base-generated VPs and that a similar analysis applies to infinitivals in Modern French. They claim that developments in Late Latin point to the loss of underlying S infinitival complements, which in their view, come to be replaced by VPs. The evidence of clitic placement in verb + infinitive constructions in Old French and the evidence of the use of causative type constructions in Old French, forms the basis of their argument that Old French provides a clear case of base-generated VP infinitival complements. The later introduction of the accusative + infinitive construction and the changes in clitic pronoun

placement do not, however, lead them to the conclusion that there is a change from VP to S complementation. Rather, the evidence, even in Modern French, for variability in pronoun placement and variability in the placement possibilities for floating quantifiers in verb + infinitive constructions leads to the suggestion that the changes in pronoun placement simply reflect a change in a 'permeability' feature associated with governing verbs. Similarly, the development of the accusative + infinitive construction does not lead them to account for this change as a shift from VP to S complements, but to another type of structural differentiation based on the introduction of an NP complement as the object of the governing verb.

In this section, the claims of Morin and St-Amour (1977) will be outlined as follows: Section 1.1 will present the basis of their claims about the evolution from Late Latin to Old French; Section 1.2 will discuss the claims about infinitival complements in Old French; and Section 1.3 will consider the evidence put forward for the continuation of VP complementation to Modern French.

1.1 Morin and St-Amour attribute the loss of the Latin constructions represented by (3) and (4) below to the replacement of underlying S infinitival complements by VP infinitivals in Late Latin.

(3) (is) me venire vult
'he wants me to come'

(4) (is) se venire vult
'he wants (himself) to come'

In (3) and (4) the subject of the infinitive appears as an accusative (me in (3) and the reflexive se in (4)). These forms are in contrast with their Modern French equivalents:

(5) il veut que je vienne

(6) il veut venir

which do not, for the governing verbs in question, allow an accusative marked subject of an infinitive. As in (5), the only possible version of (3) in Modern French has a clausal rather than an infinitival complement. The modern reflex of (4) has an infinitival complement without any surface manifestation particular to the subject of the infinitive. Thus, the position taken by Morin and St-Amour is that the Late Latin developments show a shift in complementation possibilities to allow either an underlying S complement which is manifested as a surface tensed clause or an underlying VP complement which is manifested as an infinitival and which does not contain in the surface (nor in the underlying structure) a subject of the infinitive. For the verbs in question, the tensed S complement is the only available complement type in the type (2) construction and the VP complement is necessarily restricted to the type (1) variety.

This account of developments in Late Latin is one part of the argumentation which Morin and St-Amour use to substantiate their claim

that all infinitival complements in Old French are underlying VPs. That is, the changes outlined here would not in themselves be proof of the hypothesis for infinitivals in Old French (even just for a particular class of verbs), but they are not in conflict with, and tend to support, the hypothesis when they are viewed in combination with the analysis of the evidence from Old French.

1.2 There are two characteristics, in particular, of the structure of Old French that lead Morin and St-Amour to propose that all infinitivals in Old French are underlying VPs: the attachment of clitic pronouns to governing verbs and the use of 'clause union' type constructions¹ (hitherto referred to as the 'causative' construction) in the case of governing verbs which enter into the class (2) construction but which do not enter into the class (1) construction.

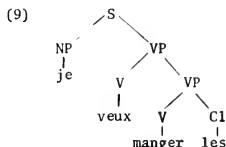
In Old French, pronouns which are complements of infinitives are cliticized to the governing verb rather than, as in Modern French, to the infinitive. The examples below show the relevant grammaticality ratings for Old French and for Modern French.

		OF	MF
(7)	a. Je <u>les</u> veux manger	✓	x
	b. Je veux <u>les</u> manger	x	✓
	'I want to eat them'		

However, when an infinitive is governed by a preposition, its complement pronouns may not move out of the infinitival phrase. In Old French such pronouns appear in stressed form, whereas in Modern French they are cliticized to the infinitive.

(8)	a. (Il est venu) pour <u>moi</u> ocire	(OF)
	b. pour <u>me</u> tuer	(MF)
	'(he came) in order to kill me'	

Morin and St-Amour claim that the preposition (thus, a PP node) in structures like (8a) blocks the movement of complement pronouns of the infinitive, whereas there is no such additional node present to block movement in constructions like (7a). They conclude that the infinitival phrase in a structure (7a) is a base-generated VP, directly embedded under the higher VP, roughly as in:



A movement rule then applies on structures like (9) to derive an output like (7a).

The second argument put forward by Morin and St-Amour in support of their claim that infinitival complements are base-generated as VPs in Old French concerns the nature of verb + infinitive constructions of type (2). They claim that, before the 2nd half of the 13th century, all such constructions are of the clause union type, thus surface VPs, and could, therefore, be directly generated as VPs. The clause union construction can be characterized by the fact that the case marking of the subject of the infinitive varies in accordance with whether the infinitive is intransitive or transitive. When the infinitive is intransitive its subject is marked as an accusative, and when the infinitive is transitive its subject is marked as a dative. The examples below illustrate this property for a range of governing verbs and should be taken as representative of the verb classes included (faire in (10) and laisser in (11) = 'causative'; voir in (12) = 'perception'; estevoir in (13) = impersonal; commander = 'order/say').

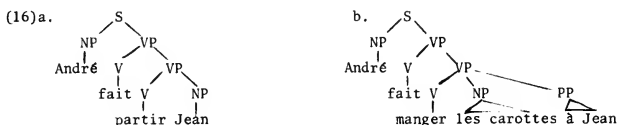
- (10)a. En seintes flurs il les facet gesir. (Rol 1856)
'in holy flowers he makes them lie'
- b. A mil Franceis funt ben cercer la vile, (Rol 3661)
'they make a thousand Frenchmen encircle the town'
- (11)a. Ainz dist qu'il le laissast uncore reposer, (Beck 2044)
'so he said that he would let him rest still more'
- b. Bien lur deit hum laisser lur custumes tenir; (Beck 2787)
'well must one allow them to keep their customs'
- (12)a. Vus le verrez murrir encui." (Brend 340)
'you will see him die today'
- b. E li abes le veit traire
A cent malfez chil funt braire. (Brend 1205)
'and the abbot sees him pulled along
by a hundred evil-doers who make him call out'
- (13)a. Or est le jur qu'els estuvrat murir." (Rol 1242)
'now is the day that it will be fitting for them to die'
- b. dunc estuvera a celui ki l'avera entre mains numer sun guarant,
'thus it will be fitting for the one who will have it between his
hands to name his guarantee' (Lois 21)
- (14)a. Par penitence les cumande(t) a ferir. (Rol 1138)
'through penitence he orders them to strike'
- b. L'empereur li cumande(t) a guarder. (Rol 2527)
'he orders him to guard the emperor'

In (10) - (14) the (a) examples contain intransitive infinitives with accusative marked subjects and the (b) examples have transitive infinitives with dative marked subjects. The data thus exemplifies the use of the clause union construction which, Morin and St-Amour claim, is general for verbs having the type (2) pattern in Old French.

If, as we have just seen, both type (1) and type (2) constructions can be analyzed as surface VPs, and furthermore, if there are no 'non-surface VP'

infinitives in Old French, then, as Morin and St-Amour argue, we can consider the possibility that all infinitivals in Old French are base-generated as VPs and that there are no base-generated S infinitivals in Old French. The advantage of such a proposal is that it eliminates the need for additional rules that would be required to reduce base-generated Ss to surface VPs. However, the proposal calls for a special resolution for the semantics of the subject of the infinitive in the clause union constructions. Morin and St-Amour propose that intransitive infinitives in clause union constructions will be base-generated as in (16a) and transitive infinitives as in (16b).

- (15)a. André fait partir Jean.
'André makes Jean leave'
b. André fait manger les carottes à Jean.
'André makes Jean eat the carrots'



In the analysis of Morin and St-Amour, the interpretive component will have access to subcategorization specifications to derive the appropriate semantic representations from such structures. Thus, for [_{VP} partir Jean] in (16a), the interpretive component will have access to the information that partir is intransitive and will assign the only possible argument relation of subject to Jean. The verb manger, on the other hand, will be defined as (optionally) transitive and the role of subject of manger in (16b) will be assigned to the dative marked à Jean. Other possibilities with unspecified subjects will derive semantic representations including a 'PRO' subject.

Thus, in the terms of the analysis of Morin and St-Amour, developments in Late Latin exhibit a tendency towards the loss of infinitival S complements as they come to be replaced by infinitival VP complements and, in the period of the earliest attested material in French, the generalization of underlying VP infinitival complements is demonstrated as complete with extension to the class (2) type as manifested in the 'clause union' construction.

1.3. The particular characteristics of infinitival constructions in Old French which have been outlined in Section 1.2 and which form the basis of the VP complement proposal put forward by Morin and St-Amour do not, however, remain stable in the subsequent evolution of the language. Pronoun complements of infinitives begin to evolve in the direction of the Modern French forms (cf. (7b)) in which they remain associated with the infinitive and can no longer be attached to the governing verb. As shown in Gougenheim (1929) and in the data presented in Galet (1971) the innovating form comes to be preponderant in the 2nd half of the 17th century. The eventual fate of the clause union construction (at least to the present time) is that it becomes restricted to a small list of governing verbs

(obligatory with faire, 'optional' with laisser, and reaching a very low frequency of occurrence with the perception verbs and the verbs envoyer and mener). The competitor for the clause union construction is a newly introduced accusative + infinitive type, which, according to Morin and St-Amour, begins to emerge in the 2nd half of the 13th century.

Somce. as we have seen, Morin and St-Amour use the evidence of the attachment of pronoun complements of infinitives to their governing verb to support the analysis of VP infinitival complementation, then we might expect that the reversal of this positioning of pronoun complements would lead to the analysis of the new forms as S infinitival complements. However, this is not the case. Morin and St-Amour have preferred to analyse the new forms as differing not in structure from the old; but differing in a feature applying to the governing verb, which they call the 'permeability' feature. The reason for this approach is that there is evidence of some variation in the movement possibilities of certain types of pronouns and of quantifiers. Thus, Modern French examples like those in (17) (from Morin and St-Amour, p.143) and (19) are in contrast with (18) and (20) respectively.

- (17)a. Tu devrais laisser en acheter (quelques-uns) à ta fille.
'You ought to let your daughter buy some (of them).'
- b. (des questions), ça a fait s'en poser (plusieurs) aux auditeurs
'(questions), that made the listeners ask themselves (several)'
- (18)a'. Tu devrais les laisser acheter à ta fille.
a''. *Tu devrais laisser les acheter à ta fille.
'You ought to let your daughter buy them.'
- b'. Ça les a fait oublier aux auditeurs.
b''. *Ça a fait les oublier aux auditeurs.
'That made the listeners forget them.'
- (19)a. J'ai voulu les réparer tous.
b. J'ai tous voulu les réparer.
'I wanted to repair them all.'
- (20)a. J'ai certifié les avoir tous lus.
b. *J'ai tous certifié les avoir lus.
'I certified having read them all.'

Although (17a) and (17b) are clause union constructions as evidenced by the dative marking for the subject of the infinitive (à ta fille and aux auditeurs), the pronoun en in (17a) and in (17b) and the reflexive pronoun se (s') in (17b) remain associated with the infinitive. That this is not possible with the complement pronoun les is shown by the acceptability ratings in (18). Morin and St-Amour argue, therefore, that the movement possibility is not blocked by structural characteristics, since both (17a) and (17b) have surface VPs as complements of faire and laisser in the clause union construction. The examples in (17) therefore show absence of movement out of an embedded VP. Extension of this observation to the (7b) type (je veux les manger) leads to the conclusion that the structure in (7b) also has a VP infinitival complement and that the possibility of

movement is attributable to a feature on the governing verb. Similarly, (19) and (20) show differing movement possibilities for the floating quantifier tous, which, again, is analyzed as a function of a feature on the governing verb--the permeability feature.

Obviously, it would be preferable to derive the contrast shown in (17) - (20) through general properties of the grammar of the language rather than through idiosyncratic feature specifications located on governing verbs. It does appear, however, that, at least for the case of floating quantifiers, the feature specification approach will be necessary, especially when we consider that quantifiers may float out of 'tensed' clauses with certain governing verbs. Thus, Pollock (1978: 102-107) gives the following acceptability ratings:

- (21)a. ?Je veux tous qu'ils partent.
'I want them all to leave.'
- b. ??Je dis tous qu'ils partent.
'I say that they all leave.'
- c. Je dis tous qu'ils sont partis.
'I say that they have all left.'
- (22)a. Il faut tous que Marie les lise.
'It is necessary that Marie read them all.'
- b. Pierre déclare tous que Marie les a lus.
'Pierre declares that Marie has read them all.'

The contrasts in acceptability in (21) and in (22) represent what Pollock terms a difference between a 'close' and a 'weak' semantic connection between a main clause and an embedded clause. The 'strength' of the connection may be affected by whether the complements are infinitival or clausal, but it is apparent also from the examples in (21) and (22), and in (19) and (20), that 'infinitival' versus 'clausal' does not provide an adequate characterization of the observable contrasts. It would seem, therefore, that Morin and St-Amour are correct in proposing that some specification on the governing verb will be necessary to account for the distinctions.

On the other hand, for the case of the positioning of pronoun complements, the evidence points to pronoun rather than to verb idiosyncracies, such as are indicated in the contrast between (17) and (18). The only construction in Modern French which permits movement of pronouns is the clause union construction, that is, a sub-set of the class (2) type constructions. Since this construction is a special case, however it is to be analyzed, it would seem necessary to include an additional feature on the verbs that enter into the clause union construction to block the movement of a sub-set of pronouns. We may take the view that it is the pronouns rather than the verbs which are idiosyncratic in their behaviour.

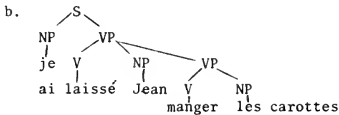
The permeability feature is thus a highly suspect device if it is to be used as a means of capturing distinctions in the placement possibilities of pronoun complements of infinitives. Such a device may have a role to play in specifying contrasts on quantifier movement, but it cannot

be seen as descriptively illuminating if used to capture the distinction in pronoun placement exhibited in (7b) and (18). In general, in Modern French, movement of pronouns is possible in clause union constructions but not in other verb + infinitive constructions and it is thus the construction type which should be viewed as providing the differentiating characteristic.

The use of the permeability feature to preserve the analysis of underlying VP infinitivals is, therefore, also suspect, although for the initial stages of the change such a device may be descriptively relevant. However, it is only through close analysis of the change in question (the repositioning of pronoun complements) that conclusions could be drawn as to the validity of such a hypothesis.

The second change discussed in Morin and St-Amour is the introduction of the accusative + infinitive type for verbs of the class (2) type. This construction is limited to class (2) in French, that is, it does not extend to class (1) as it did in Latin. Morin and St-Amour suggest that this new development in French should be analyzed as the development of a construction in which the semantic subject of the infinitive is base-generated as a complement of the governing verb, roughly as in:

- (23)a. J'ai laissé Jean manger les carottes.
'I let Jean eat the carrots'



The structure proposed in (23b) preserves the notion of the base-generated VP complement. Morin and St-Amour argue that (23b) is the appropriate underlying structure because the verbs that permit the accusative + infinitive construction are those which can take a direct object NP in simple clauses. Thus, they suggest that *faire* has not followed the same path as *laisser* or the perception verbs in adopting the accusative + infinitive alternative because 'lorsqu'on voit partir Pierre, on voit Pierre, lorsqu'on laisse partir Pierre, on laisse Pierre, etc.' (when one sees Pierre leave, one sees Pierre, when one allows Pierre to leave, one allows Pierre, etc.) and that 'Cependant lorsqu'on fait partir Pierre ce n'est pas le cas qu'on fasse Pierre' (p.140) ('However, when one makes Pierre leave it is not the case that one makes Pierre').

The adoption of the structure (23b), however, does not in itself account for the distinction between the positioning of the pronoun complements in:

- (24)a. J'ai laissé manger les tomates à Pierre.
b. Je les lui ai laissé manger.
c. *Je lui ai laissé les manger.
'I let Pierre/him eat the tomatoes/them.'

- (25)a. J'ai laissé Pierre manger les tomates.
 b. Je l'ai laissé les manger.
 c. *Je le les ai laissé manger.

If the permeability feature were to apply in (25) to block the movement of the complement pronoun *les*, it would have to be able to distinguish between the clause union construction and the accusative + infinitive. However, for Old French the relationship between the introduction of the accusative + infinitive and the introduction of changes in the placement of pronoun complements of infinitives has not yet been examined. We will take up this question in Section 3 below.

2. Infinitival complements in Modern Italian

In this section I will outline briefly the general nature of some proposals which have been made with respect to infinitival complements in Modern Italian. The relevance of the analysis of Modern Italian to that of Old French is that the constructions to be discussed share certain properties in the two languages. Whereas Modern French does not allow pronoun complements of infinitives to attach to governing verbs in class (1) type constructions, such pronoun placement is observed with certain governing verbs in Modern Italian (*volere* ('to want'), *potere* ('to be able'), *dovere* ('ought/must'), . . .). Where permitted, the association of the complement pronoun with the governing verb in Italian is 'optional', as in:

- (26)a. Voglio riparare la macchina.
 b. Voglio ripararla
 c. La voglio riparare.
 'I want to repair the car/it'

Rizzi (1976, 1978) has applied the term 'restructuring verbs' to those verbs which permit construction (26c) on the basis of an analysis in which both (26b) and (26c) have the same underlying structure from which (26c) is obtained by the application of a 'restructuring' rule. Thus, approximately:

- | | |
|---|------------------|
| (27)a. voglio [_S Ø riparare la] | Equi-NP deletion |
| b. [_v voglio riparare] la | Restructuring |
| c. la voglio riparare | Clitic placement |

The embedded S node disappears under restructuring and the clitic pronoun is therefore free to attach to the higher verb. In the derivation of (26b) restructuring (an optional rule) does not apply and movement of the pronoun is therefore blocked. The basic surface structure distinction between (26b) and (26c) is that (26b) includes an S node which is absent in (26c). The absence of the S node in (26c) is comparable to the absence of the S node in the Morin and St-Amour analysis of parallel constructions in Old French. The basic difference between the analyses of Rizzi and of Morin and St-Amour, however, is that in the former case the surface structure is derived by a syntactic rule and in the latter case it is directly generated.

The important aspect of Rizzi's analysis for our consideration of Old French material is that it makes use of a variety of evidence to show that there is no embedded surface S in the structures in question. It will not be possible to examine similar phenomena from material in Old French (Object Preposing, Wh-Movt., Cleft sentence formation), but, failing counter-evidence, we may assume that the 'reduced' structures in Modern Italian are generally comparable with the only available structure for such verb types (class (1)) in Old French. However, one particularly salient point of comparison which can be observed in Old French is the change of auxiliary phenomenon. In Modern Italian this is represented as in (from Rizzi, 1978:136 (84)):

- (28)a. Maria ha dovuto venirci molte volte.
 b. Maria c'e dovuta venire molte volte.
 c.*?Maria ci ha dovuto venire molte volte.
 'Maria has had to come here many times'

The verb dovere is conjugated with the auxiliary avere, as in ha dovuto in (28a). In (28b), however, the use of the auxiliary essere, with e dovuta, is related to the presence of venire as the infinitival complement of dovere. (Note that if used by itself, venire regularly takes the auxiliary essere.) The 'reduced' nature of the structure in (28b) is evidenced by the association of the clitic c' (= ci) with dovere rather than with venire (cf. (28a)). The unacceptability of (28c) is due to conflicting manifestations of restructuring--attraction of the clitic, but non-attraction of the auxiliary. Gougenheim (1929:172) cites evidence for comparable auxiliary attraction with verbs governing infinitives in Old French. (Here again, the use of est etc. as auxiliary is motivated by venire, not by voulu etc.)

- (29)a. Li mareschaux n'estoit voulu venir a lui. (Livre de la Conquete, p.412)
 b. Vous estes volue apparoir. (Miracles N.D., I, 460)
 c. La flambe du puis où elle estoit deue cheoir. (La Tour Landry, p. 75)
 d. Sur l'asnesse est volu monter. (Arnould Gréban, Le Mystère de la Passion, v.16135)

The data from Old French in (29) does not include clitic pronouns, but it derives from the period in which pronoun complements were attached to the governing verbs and therefore should be regarded as comparable to the 'restructured' type in (28b). On this evidence, and on the evidence of clitic pronoun placement in Old French, we may assume that verb + infinitive constructions belonging to class (1) in Old French have surface syntactic properties in common with 'restructured' forms in Modern Italian.

It is another question whether the surface forms in Old French are to be analyzed as 'restructured' or as base-generated. There are, in fact, a variety of analyses for the data discussed above from Modern Italian. In addition to Rizzi's proposal for a Restructuring rule, we find also 'V Raising' (Van Tiel-di Maio, 1978), 'VP Raising' (Burzio, 1981) and base-generation of VPs (Strozer, 1981). What all of these analyses have in common, however, is the absence of S domination of the infinitive in the surface structure. The aim of this Section has been to show that the surface VP analysis for class (1) verbs in Old French is consistent with analyses of parallel constructions in Modern Italian.

3. Further evidence from Old French

3.0. The discussion presented in this Section will be based on the evidence provided by a collection of data from the earliest stages of Old French.

The data has been collected from 3 groups of texts. Group I covers the earliest available material from the year 842 to the end of the 11thC. The texts are: the Serments de Strasbourg (approx. 7 lines), Sainte Eulalie (29 lines), the Sermon on Jonas (mixed Latin and French, approx. 226 lines), the Vie de Saint Léger (240 lines), the Passion of Clermont-Ferrand (516 lines), the Sponsus (40 lines). Group II consists of (Anglo-)Norman texts, including one text from the 2nd half of the 11thC: the Vie de Saint Alexis (625 lines); and with the remaining texts all from the period 1100-1125: the Chanson de Roland (4,002 lines), the Cumpoz of Ph. de Thaur (3,550 lines), the Voyage de Saint Brendan (1,840 lines), the Lois de Gu. le Conquérant (approx. 52 paras), and the Déclaration de Grég. II sur les images (21 lines). Group III covers the period 1150-1175 for Francien (including one Norman text) and includes: the Prise d'Orange (1,888 lines), Aïol (Part I, lines 943-1,623, 1,885-3,205), Erec et Enyde (lines 2,021-4,025), the Roman de Rou (Part II, lines 1,001-3,013), and the Vie de Saint Thomas Becket (2,001-4,000).

Group I provides approximately 1,000 lines of text and each of Groups II and III has approximately 10,000 lines of text. Group III, however, provides the largest sample of data because it contains verses with longer lines (up to 12 syllables).

From all 3 groups of texts an exhaustive collection has been made of the examples of verb + complement constructions (clausal and infinitival complements) for those governing verbs which appear in class (2) but not in class (1).³ The verbs collected from the texts fall into categories as:

- (a) cause/permit: faire, laisser, laier
- (b) perception: voir, oïr
- (c) impersonal: loisir, estevoir, convenir, plaire
- (d) order/say: (com)mander, rover, prier, requerre
- (e) others: donner, garder

The sample provides a total of 937 instances of such verb + complement types, including clausal as well as infinitival complements.

In the discussion to follow, we will exclude from consideration those governing verbs which occur fewer than 6 times in the total data sample because the infrequency of their occurrence means that the forms that they exhibit must be taken as less significant for the patterns that might be established. The total of occurrences remaining then comes to 881. Table A below lists the number of occurrences for each governing verb, showing the totals for both infinitival and clausal complements and the percentages for infinitival complements.

Table A shows that, among the more frequently occurring verbs, faire, laisser, estevoir, convenir, and rover clearly prefer infinitival complements (see note 3 for reasons for the non-inclusion of clausal

complements with perception verbs), whilst prier shows a clear preference in the direction of clausal complements. The overall infinitival percentages for each group indicate an increase in the use of infinitival complements, although this general pattern for the groups is matched only by one verb (rover) and the totals for the individual verbs in Group I are too small for the results in Group I to be significant for the pattern as a whole. The increase in the use of infinitival complements from Group II to Group III would indicate an increase in the use of synthetic as against analytic constructions, although this tendency within verse texts could be a function of the evolution of aspects of the literary style. Analysis of the behaviour of individual verbs will be the focus of the discussion to follow.

TABLE A

	Group I			Group II			Group III			Groups I - III			
	Inf	Cl	%Inf	Inf	Cl	%Inf	Inf	Cl	%Inf	Inf	Cl	Tot	%Inf
faire	14	-	100	93	1	99	249	3	99	356	4	360	99
laisser	7	-	100	21	3	88	58	-	100	86	3	89	97
laier	-	-	-	4	4	50	20	6	77	24	10	34	71
veir	4	-	100	41	-	100	60	-	100	105	-	105	100
oïr	-	-	-	14	-	100	40	-	100	54	-	54	100
loisir	1	1	50	4	-	100	1	-	100	6	1	7	86
estevoir	-	-	-	19	-	100	38	-	100	57	-	57	100
convenir	1	-	100	2	-	100	16	1	94	19	1	20	95
plaier	-	-	-	6	-	100	2	1	67	8	1	9	89
rover	8	3	77	4	1	80	6	1	86	18	5	23	78
(com)mander	2	1	67	4	12	25	9	17	53	15	30	45	33
prier	-	7	0	1	26	4	-	20	0	1	53	54	2
requerre	-	-	-	-	-	-	1	8	11	1	8	9	11
donner	-	-	-	2	1	67	3	1	75	5	2	7	71
guarder	-	-	-	1	3	25	1	3	25	2	6	8	25
	<u>37</u>	<u>12</u>	76	<u>216</u>	<u>51</u>	81	<u>504</u>	<u>61</u>	89	<u>757</u>	<u>124</u>		86
	49			267			567			881			

3.1 We will now consider aspects of the behaviour of faire, the most frequently occurring verb for all 3 groups.

Of the infinitival complement types with faire, only a relatively small proportion have transitive infinitives with lexically realized subjects. Table B below lists the numbers of occurrences of faire + infinitival complement according to characteristics of the complement type. This Table includes as a point of comparison the figures for the same phenomena from a Modern Italian text, a collection of short stories by Giorgio Saviane, La donna di legno.

TABLE B: faire + infinitive types

	A	%	B	%	C	%	Tot	Z
Group I	7	50	4	29	3	21	14	-
Group II	49	53	37	40	7	8	93	-
Group III	148	60	63	26	31	13	242	8
Tot:	204	58	104	30	41	12	349	8
Saviane	14	35	16	40	10	25	40	-

A: subject of infinitive is unspecified
 B: intransitive infinitive with specified subject
 C: transitive infinitive with specified subject
 Z: conjoined complements including distinct complement types

EXAMPLES

- A: (30) Par multes terres fait querre sun amfant; (Alex 112)
 'throughout many lands he makes seek his child'
- B: (31) Ço dist l'imagene: "Fai l'ume Deu venir, (Alex 171)
 'this said the image: "Make the man of God come'
- C: (32) La dreite vide nus funt tresoblïer, (Alex 619)
 '(they) make us forget the straight path'
- Z: (33) En quei Deus te trovad, cum il t'a fait munter
 E creistre e enrichir e tun regne afermer. (Beck 2933)
 'In which God found you, as he made you rise
 and grow and become rich and affirm your reign'

The percentages of Table B show a relatively low frequency of occurrences of Category C for the Old French data, with a somewhat higher frequency for this category in the Modern Italian text. The point of interest will now be to consider the patterns attested with the B and C categories, both of which have lexically specified subjects.

Out of the total of 104 instances of Category B over Groups I - III, there is a total of 2 occurrences (both from Group III) in which the subject of the infinitive is marked as a dative, the remainder being either accusative (= 90) or morphologically ambiguous (= 12). The 2 datives are in:

- (34)a. si li fe(rai) souffrir, m(e)ngier amer et sur." (Rou 2301)
 'I will make him suffer, eat bitter and sour'
- b. Encor faiseit il plus al cors mal endurer: (Beck 3941)
 'he still made his body endure bad(ly) more'

It is possible that the predicative nature of the complements in both of these examples means that the infinitives are being treated as transitives. Furthermore, it is not clear whether souffrir should be regarded as an intransitive verb or as an impersonal verb. If the latter, (34a) would rightly belong in the conjoined class, Category Z. These 2 occurrences, therefore, do not provide a basis for assuming that a dative marked subject of an intransitive is valid for the period under consideration or, indeed, that there is any degree of fluctuation between dative and accusative.

In Category C the subject of the infinitive can be marked as accusative, dative, or as an agentive (i.e. governed by the preposition par). Table C below shows the totals of each type for each Group.

TABLE C: faire + transitive infinitives

Subj. of infinitive:	<u>Acc.</u>	<u>Dat.</u>	<u>Agent.</u>	<u>Ambig.</u>
Group I	1	1	-	1
Group II	-	3	-	4
Group III	4	22	2	3
Tot.:	5	26	2	8

Whereas the accusative marking for the subject of the intransitive infinitive (Category B) has been shown above as well established, the dative marking for the subject of the transitive infinitive, although preponderant, appears to be less firmly established, with the total for this type being 26 against 5 accusative. The examples in Category C which have an accusative-marked subject of the infinitive are as follows:

- (35)a. voldrent la faire dïaule servir. (Eul 4)
'they want to make her serve the devil'
- b. Loeys le ferai tout otroier, (Aïol 288)
'I will make Louis authorize it all'
- c. Dunc fist li reis Henris Randulf del Broc crïer
Par tute Norhantune que l'um laïssast alër
Les hummes l'arcevesque quitement le jur cler; (Beck 2051-3)
'thus King Henry made Randulf del Broc proclaim through
the whole of Northampton that the archbishop's men be
allowed to go freely in daylight'
- d. Sis volt faire par force sainte iglise tenir. (Beck 2349)
'and he wants to make them (the laws) hold the holy church by force'
- e. L'empereür Archadie fist iglise voidier
Innocenz l'apostolie, nel volt pur li laïssier, (Beck 2998-9)
'Pope Innocent made the Emperor Areadius leave the church, . . .'

Morin and St-Amour (1977) have claimed that accusative marked subjects of transitive infinitive complements occur so rarely in pre-1250 Old French that those which do occur should be regarded as aberrations. Let us consider the examples in (35). Firstly, for the case of (35a), Morin and St-Amour suggest that the use of the accusative in this example is related to the fact that some verbs in Old French, including servir, exhibit alternations between accusative and dative complements (that is, between servir qqn. and servir à qqn.). They suggest that the object of servir, dïaule, is an underlying dative which appears as accusative on the surface. However, Tobler-Lommatzsch classify servir as transitive and their listing of examples with servir includes only one instance with a dative complement (Deus l' exaltat cui el servid (Leg 29)). On this evidence, therefore, the dative as a complement of servir should be regarded as an aberration and we do not have support for the claim that dïaule is not an accusative, even at the level of underlying structure.

Three of the remaining 4 examples in (35) are all from the same text, Becket. However, this text also provides 7 of the examples with dative marked subjects of transitive infinitives,⁴ and so follows the general pattern of preference for the dative in this category. The example (35c) is an instance in which the infinitive is classified as transitive because it takes a clausal complement.⁵

Overall, the number of instances of accusative-marked subjects of transitive infinitives is small enough to allow them to be regarded as aberrations. However, when we compare the total of 5 accusatives and the total of 26 datives for the transitive infinitives with the total of 2 datives and 90 accusatives for the intransitives, then this makes a greater proportion of aberrations with the transitive infinitives and would seem to indicate that the construction with the dative is less firmly established than the accusative + intransitive counterpart.

Agentive subjects of infinitives with par do not appear in the data sample until Group III and they appear in conjunction with the introduction of the instrumental use of par in the same period, e.g.:

- (36) et Anquetil le prouz fist par engin tuer,
 et Baute d'Espaingne o un escu garder; (Rou 1364-5)
 'and he had the valiant Anquetil killed by ruse, and Baute
 of Spain guarded with/by a man of arms'

The 2 examples with agentive subjects are as follows:

- (37)a. Puis a fet un suen escuier
par une pucele apeler, (Erec 2612-3)
 'then she had her servant called by a maiden'
 b. Par duze le fesist la justise prover, (Beck 2453)
 'he has it proved right (?) by 12 (men)'⁶

The low level of occurrence of agentives in the sample means that their use cannot be analyzed.

Thus, we have seen that the least numerous of the infinitival complement types with faire, those with transitive infinitives, show a degree of fluctuation in the treatment of the case marking on the subject of the infinitive. The more numerous category of intransitive infinitives, on the other hand, shows the clearly set pattern of accusative marking for the subject of the infinitive. The low frequency of occurrence (cf. the comparable data for a text in Modern Italian in Table B) in combination with the fluctuation in case marking with the transitive type indicates that the construction is not fully set in a syntactic mould (or that it is breaking out of an already established mould). In the next part of this Section we will consider how other governing verbs behave in comparison with faire.

3.2. In the previous part of this Section we have seen that the use of the verb faire in the data collected from the early period of Old French can be characterized in terms of the relative frequency of infinitival complement types and in terms of the case marking of the logical subject of intransitive infinitives versus transitive infinitives. We will now consider how other verbs of the sample behave with respect to the same phenomena.

Firstly, let us consider the phenomenon which with faire showed the greatest degree of fluctuation--that of the case marking for the subject of transitive infinitival complements. Table D below lists the occurrences of accusative versus dative marking for all the verbs of the sample which are attested with transitive infinitival complements.

TABLE D: acc./dat. + transitive infinitive

Groups:	I		II		III		I - III		
	acc.	dat.	acc.	dat.	acc.	dat.	acc.	dat.	%acc.
faire	1	1	-	3	4	22	5	26	16
laisser	1	1	-	-	1	2	2	3	40
voir	-	-	1	3	2	-	3	3	50
oïr	-	-	-	-	1	2	1	2	33
loisir	-	-	-	2	-	-	-	2	0
estevoir	-	-	-	2	1	3	1	5	17
convenir	-	-	-	-	-	2	-	2	0
plaire	-	-	-	2	-	-	-	2	0
rover	-	1	1	-	-	-	1	1	50
(com)mander	-	-	-	2	-	3	-	5	0
donner	-	-	-	1	-	1	-	2	0
Total:							13	53	20

Verb types:

	acc.	dat.	%acc.
faire	5	26	16
laisser	2	3	40
perception	4	5	44
impersonal	1	11	8
'speak'/'command'	1	6	14

Although, apart from faire, no single verb in Table D shows a high number of occurrences of either types, when the verbs are arranged in groups, the results call for further comment. It is of interest to note that it is precisely the verbs which have grammatical accusative + infinitive constructions in Modern French (laisser and the perception verbs) which show the highest frequency of occurrence for this construction in this period of Old French. The figure of 40-44% accusative for laisser and the perception verbs (versus 16% for faire) goes against the claim made by Morin and St-Amour that the accusative + infinitive construction was not a part of the grammar of Old French in this period. We may, indeed, readily assume on the basis of the data collected here that

laisser and that perception verbs allowed both types of case marking for the subjects of transitive infinitival complements (what we have been calling the 'accusative + infinitive' type and the 'clause union' type). Furthermore, when we include the additional observation that laisser and the perception verbs have a combined total of 132 accusative marked subjects of intransitive infinitives and no dative marked subjects (there are an additional 19 morphologically ambiguous occurrences), it is clear that the variation observed with the transitive infinitival complements is specific to this complement type.

However, with the remaining 2 groups, those classified as 'impersonal' and those falling into the 'speak'/'command' category, we have evidence of some variation in the case marking of the subject of intransitive infinitives. For the verbs represented in Table D, the figures for Groups I - III are as follows:

TABLE E: acc./dat. + intransitive infinitive

	<u>acc.</u>	<u>dat.</u>	<u>Ambig.</u>
<u>Impersonal</u>			
loisir	-	-	2
estevoir	8	2	14
convenir	3	1	9
<u>Tot.:</u>	11	3 (=21%)	25
<u>'speak'/'command'</u>			
rover	3	1	3
(com)mander	3	-	2
<u>Tot.:</u>	6	1 (=14%)	5

The one instance of dat. with rover in the 'speak'/'command' category in Table E cannot be taken as indicative of a dative alternative for this class. With the impersonal verbs, the higher proportion of ambiguous cases comes from heavier use of the complement pronouns me and vous, which can be either accusative or dative. The total of 3 examples of dative marked subjects in this category indicates a degree of variation in contrast with the lack of such variation seen above for faire and for laisser and the perception verbs.

Inspection of the distribution of accusative and dative markings for subjects of both intransitive and transitive infinitival complements, therefore, has shown that governing verbs in Old French are not undifferentiated in terms of the markings that they give to infinitival complements. We have seen a definite contrast in the behaviour of two frequently occurring governing verb 'types', on the one hand faire, and, on the other hand, laisser and the perception verbs, with respect to the case marking of the subject of transitive infinitival complements. With the less frequently occurring classes of impersonal verbs and 'speak'/'command' verbs, we have found that their behaviour with transitive infinitival complements appears to be comparable to that of faire,

but that the impersonal class shows some evidence of variation in case marking with intransitive complements, which, on the other hand, is not evidenced with *faire*. The data is therefore in conflict with two of the claims made by Morin and St-Amour: (1) the accusative + infinitive complement type did not become grammatical in Old French until the 2nd half of the 13th Century, (ii) infinitival complementation is a unitary phenomenon, undifferentiated according to governing verb type. We have seen that a relatively high frequency of accusative + infinitive with transitive infinitives governed by *laisser* and the perception verbs falsifies both claim (i) and claim (ii). And claim (ii) is further falsified (but more weakly, given lower totals of occurrence) by evidence of variation in the case marking of subjects of intransitive infinitives governed by impersonal verbs.

3.3 In this sub-section we will explore further aspects of complementation in Old French which have bearing on the analysis of the infinitival complements discussed in Sections 3.1 and 3.2. We will consider, firstly, further evidence of differentiation in complement types and, secondly, we will consider hypotheses suggested by the data as to the analysis of the accusative + infinitive with the transitive infinitives.

In the previous parts of this Section we have seen that there is evidence of variation in the case marking of the subjects of transitive infinitives. The Old French data also includes examples of clausal complements accompanied by an NP complement which may be either accusative or dative. The following two examples illustrate this construction, (38) having an accusative NP complement and (39) with a dative NP complement.

- (38) uncore *le* mande l'un que il plege truse e vienge a dreit (Lois para. 47)
'until one orders him that he pledge truce and come to the law'
- (39) Quant Deus del cel *li* mandat par sun a(n)gle
Qu'il te dunast a un cunte cataignie; (Rol 2319)
'when from heaven God ordered him by his angel that he
give you to one of his captain counts'

Table F below shows the number of occurrences of accusative versus dative marking of NP complements accompanied by clausal complements.

TABLE F: acc./dat. + clause

Group:	I		II		III		I - III		%acc.
	acc.	dat.	acc.	dat.	acc.	dat.	acc.	dat.	
convenir	-	-	-	-	-	1	-	1	0
plaire	-	-	-	-	-	1	-	1	0
rover	-	1	-	-	1	-	1	1	50
(com)mander	-	-	1	3	-	7	1	10	9
prier	2	2	13	4	6	6	21	12	64
requerre	-	-	-	-	3	1	3	1	75

The largest number of examples in Table F comes from the 'speaking' class of verbs: rover, (com)mander, prier, requerre. As shown in Table A, two of these verbs, prier and requerre, heavily favour clausal complements, having only one occurrence in each case of an infinitival complement. If we do not assume a structural difference between Verb NP_{acc} S and Verb NP_{dat} S, we must assign the fluctuation between accusative and dative as shown in Table F to other factors. The examples representing the 52 occurrences in Table F show some evidence of a differentiation between pronominal and substantive NPs. However, this is more clearly the case with prier, which has many instances of what must be a fixed expression, prier Dieu, contrasting with li prier. Table G below shows the totals for each type for all the verbs of Table F and with prier extracted as a separate case.

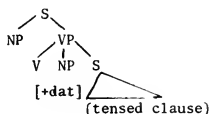
TABLE G: acc./dat. + clause, and NP/pro

	acc.		dat.	
	pro	NP	pro	NP
except <u>prier</u>	2	3	9	5
<u>prier</u>	1	20	11	1
total	3	23	20	6

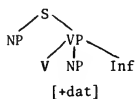
When prier is extracted from the total in Table G it is not clear whether we can attribute any significance to the figures for the pro/NP alternation with the remaining verbs. The percentage for accusative with the remaining verbs is 26%, showing an overall preference for the dative with these constructions.

If more evidence were available it might be possible to make a connection between the dative marking in the clausal construction and the dative marking in constructions with infinitive complements that would suggest a parallelism between the two structures represented below in (40).

(40)a.



b.



Since we must assume that (40a) is the appropriate structure for the majority of cases with dative marking of the NP in V NP [S. . .], if we were to find parallel case marking accompanying infinitival complements, then we could be led to posit a connection between the two types. Ard, for example, has discovered that historical change in complementation in English can be characterized by the following schema for verbs in the 'order' class (1977:24):

(41)	(i)	(ii)	(iii)
	+ clause	+ NP + clause	+ NP + inf.
early OE	very frequent	less frequent	rare
late OE	frequent	frequent	less rare
Mid e.	-	common	common
Mod. E.	-	very rare	frequent

The schema in (41) indicates a direction of change following the complement types from (i) to (iii), which would seem to indicate the structure of (40b) as appropriate (at least in the developing stages) for the NP + Inf. type in English. Ard argues, for instance, that the development of (41iii) does not come about through the introduction of a rule of Subject Raising to Object.

The present data from Old French does not supply us with comparable evidence of development in the language, except that we may note from Table A that both rover and (com)mander show a higher percentage of infinitival over clausal complements in Group III than they do for Groups I and II combined (rover: Groups I-II = 75% inf., Group III = 86%; (com)mander: Groups I-II = 32%, Group III = 53%). However, (com)mander is the only verb for which this change could be significant because rover, which eventually disappears from the language, is already progressively less well-attested proportionally in Groups II and III. If the case marking associated with the NP complement in the structure (com)mander NP [S. . .] was being carried over to the infinitival construction as (com)mander NP Inf, then we would expect a prevalence of the dative in the case marking of the NP in the latter structure. However, (com)mander does not diverge from the mainstream pattern of case marking with infinitive, since over the whole data sample it has three accusative NPs with intransitive infinitives and five dative NPs with transitive infinitives and shows no variation from this pattern. The concentration of the present data sample in the relatively short time span of 75 years (1100-1175) does not provide us with indicators of a pattern of change such as discovered by Ard for data in English covering a much broader time span.

What remains of interest in Table G is the variation in case marking, attested even with the verb prier extracted from the sample (% acc. = 26%). We might postulate that the variation in V NP S is an effect of lexical idiosyncrasy (the lexical subcategorization of the case marking of verbal complements) in contrast to the more clearly defined (and much less variable) case marking in particular syntactic constructions. On the other hand, we must also note that the accusative case marking which is overwhelmingly attested for the subject of intransitive infinitives tends to occur in constructions with a high frequency of occurrence. Table H below shows the distribution of verb types according to whether their infinitive complements have unspecified subjects, are intransitive, or are transitive.

TABLE H: Infinitival complement types

	A		B		C		Tot.
	Tot.	%	Tot.	%	Tot.	%	
<u>faire</u>	203	58	104	30	42	12	349
<u>laisser/laiser</u> ⁷ + perception	68	28	154	64	18	8	240
impersonal	22	25	41	47	25	28	88
'say'/'order'	12	34	14	40	9	26	35

A: subject of infinitive is unspecified

B: intransitive infinitive with specified subject

C: transitive infinitive with specified subject

We have seen from Table D above that laisser and the perception verbs distinguish themselves from other verbs by having a higher proportion of accusative marked subjects of transitive infinitives. We find in Table H that these verbs further distinguish themselves from the other groups in that they have a higher proportion of intransitive infinitives. The accusative marking of the subject of intransitive infinitives is clearly established (especially for the laisser class) in contrast with the degree of fluctuation between dative and accusative with other complement types. It would appear that the higher proportion of accusative marked subjects of transitive infinitives with this same class of verbs is an influence of the higher frequency of intransitive infinitival complements. We may hypothesize that the tendency for dative marking of subjects in other constructions is not yet fully 'syntacticized' in the language and that, in the case of laisser and the perception verbs, the influence of the frequency of the accusative + infinitive construction is such as to inhibit the development with the dative to prevent it from becoming fully set as the only construction available with transitive infinitival complements. To this extent, the influence of the accusative + infinitive construction is a preserving rather than an innovating influence.

The second observation that can be made from Table H is that faire is clearly distinguished from the other groups of verbs in that it has a much larger proportion of unspecified subject infinitival complements. We saw earlier (Table B) that faire in Old French appeared to have a higher proportion of such complement types than fare in Modern Italian. And now we see from Table H that its behaviour is idiosyncratic in this respect vis-à-vis other verbs in Old French. It is as if faire might have originally governed an infinitival complement type lacking a specified subject and open to the analysis of an underlying VP. This would imply that the emergence of the type with a lexical subject was derived originally by analogy with verbs that were subcategorized for NP complements as well as infinitives.

The special development of the construction type contrasting accusative + intransitive infinitive with dative + transitive infinitive appears to be a development particular to Romance. Thus, Norberg (1945) characterizes the accusative/dative variation of this type as not yet syntactically defined in Old French: 'En ancien français, surtout, on trouve assez souvent le datif, même si l'infinitif est intransitif, et il y a aussi des exemples d'un accusatif avec un infinitif transitif' (p.94) ('In Old French, especially, the dative is found quite often,

even if the infinitive is intransitive, and there are also examples of an accusative with a transitive infinitive'.) The evidence provided by the data examined here, however, has shown that the syntactic definition of accusative versus dative is already a marked tendency in early Old French, but which varies in strength according to the governing verb type. In the analysis of Norberg, both the accusative and the dative markings derive from developments from Latin into French, which can be characterized roughly as:

(42) (i) Verb_A + NP_{acc.} + Inf Verb_B + NP_{dat.} + Inf

(ii) Verb_C + NP_{acc./dat.} + Inf

(iii) Verb_C + NP_{acc.} + Inf_{intrans} Verb_C + NP_{dat.} + Inf_{trans}

In fact, as Norberg describes the situation, Latin also provides evidence of shifts in case marking of the NP complement with the infinitive. For example, *licet* took an accusative complement in archaic Latin which subsequently shifted to the dative in Late Latin. Other impersonal verbs, such as *decet*, *pudet*, *piget*, and *oportet* also developed a dative NP complement. On the other hand, the verbs *mandare*, *imperare*, *concedere*, and *permittere* show evidence of change from dative to accusative NP complements. And *iubere*, *pati*, *sinere*, and *facere* show changes from the accusative to the dative in Late Latin. In the schema in (42, (42ii) therefore represents a pre-Romance stage of variation in case-marking, which according to Norberg continued into early Old French. However, as we have seen with the data that has been analyzed up to this point, the syntactic specialization represented in (42iii) is already evident, if not fully set, in early Old French.

According to Norberg, and essential part of the development in (42iii) with *facere* is the tendency for *facere* to become linked with the following infinitive ('à se lier à l'infinitif suivant' (p.92)). As a result, 'il a fallu que le datif se dégage de la dépendance primitive et directe du verbe principal et qu'il se rattache à toute l'unité verbale' ('it was necessary for the dative to detach itself from the initial direct dependency on the governing verb and to attach itself to the verbal expression as a whole'). In the terms of the previous discussion in this paper, the close connection between governing verb and infinitive has been described as a function of clitic pronoun placement and the 'change of auxiliary' phenomenon--what we have accepted (in agreement with Morin and St-Amour (1977) as at least a surface VP configuration for the infinitive phrase. No doubt the same argument about the close connection between governing verb and infinitive applies also to the accusative + infinitive type. The question is then to determine, assuming that such developments occurred more or less simultaneously (i.e., the 'unification' of governing verb and infinitive with both accusative and dative complements), by what means the syntactic differentiation in (42iii) between the two constructions was established. It could be that the accusative (the 'simplest' solution ?) absorbed the majority of instances (those with intransitive infinitives) and the dative came to be reserved for the more 'complex' case of transitive infinitives. It would appear from the high proportion of infinitives with unspecified subjects with *faire* in Table H and the low proportion of transitive infinitives with specified subjects that the transitive infinitive type with *faire* is indeed more unusual and therefore adopts the more 'complex' construction type.

The present discussion, however, implies that there was no fundamental syntactic difference between infinitival complement types, apart from the presence or absence of a direct object of the infinitive. Modern French, on the other hand, shows a clear syntactic difference between the two complement types. The Modern French constraints on word order in the dative + transitive infinitive versus the accusative + intransitive infinitive constructions are illustrated in (43) and (44) below.

- (43)a. J'ai fait manger les tomates à Paul.
 b. *J'ai fait à Paul manger les tomates.
 c. Je les fait manger à Paul.
 d. *J'ai fait les manger à Paul.
 'I made Paul eat the tomatoes/them'
- (44)a. J'ai laissé Paul manger les tomates.
 b. *J'ai laissé manger les tomates Paul.
 c. J'ai laissé Paul les manger.
 d. *Je les ai laissé Paul manger.
 'I let Paul eat the tomatoes/them'

The examples in (43) illustrate the construction with the dative and in (44) the construction with the accusative. The (a) and (b) examples illustrate the grammatical order for the NPs in the respective constructions. Examples (c) and (d) illustrate the fact that the pronoun complement of the infinitive is attached to the higher verb in the construction with the dative and to the infinitive in the construction with the accusative.

The data that we have been considering from Old French is characterized by relative freedom of word order and by the fact that clitic pronouns do not attach to infinitives. For the constructions in question, two observations can be made on the basis of the sample: (i) word order of accusative versus dative marked NP subjects of transitive infinitives does not give evidence of distinct patterns, (ii) the evidence available does not suggest a distinction between the (43c) case and the (44c) case.

The data sample contains a total of 25 examples including an accusative or dative-marked substantive subject of a transitive infinitive. The number of occurrences in terms of order of the subject of the infinitive in relation to the governing verb and the infinitive is given below.

TABLE I: Order of NP subjects of transitive infinitives

	+ acc.	+ dat.	
____ Main verb	3	9	
Inf. ____	-	3	
Main verb ____ Inf.	4	6	
	<hr/> 7	<hr/> 18	Tot. = 25

It is not possible to determine distinguishing patterns of word order from these figures, except that there may be a greater tendency for preposed

dative marked subjects. The material provided by the data sample has the considerable disadvantage that the amount of prose included is so small as to be negligible and the word order in verse texts operates under some constraints and perhaps exhibits a greater freedom in other respects. On the basis of the data that we are considering here, however, we must conclude that we have no evidence in support of a surface structure difference between transitive infinitival complements with accusative-marked subjects and those with dative-marked subjects.

Of a total of seven examples of accusative-marked subject constructions with clitic pronouns, two include clitic pronouns which are complements of the infinitive. The seven examples are listed below with the accusative subjects underlined.

- (45)a. voldrent la faire diaule servir (Eul 4)
'they wanted to make her serve the devil'
- b. E sis rovet cel recevoir. (Brend 358)
'and so he asks them to receive that'
- c. Loeys le ferai tout otroier, (Aïol 2879)
'I will make Louis authorize it all'
- d. Sis volt faire par force sainte iglise tenir. (Beck 2349)
'and he wants to make them hold holy church by force'
- e. ne le voudrent lessier, si firent grant savoir,
lors villes essillier et lor mesons ardoir, (Rou 2760-1)
they do not want to let him, so they had great wisdom,
exile their towns and burn their houses'
- f. envie out qu'il le vit lez Franceis vergonder, (Rou 1379)
'he was envious as he saw him insult the French'
- g. Dunc l'esteüst l'evesque al vescuente mustrer; (Beck 2424)
'thus it was fitting for the bishop to show it to the count'

The examples (45c) and (45g) contain pronouns which are complements of infinitives and, in both cases, they occur attached to the governing verb. Although only two such examples occur in the data, I believe that we can take them as indicative for the simple reason that we could not expect to find a large number of occurrences of this type. Pronoun placement, therefore, does not indicate that there is a structural distinction between transitive complements with accusative-marked NP subjects and those with dative-marked NP subjects.

4. Conclusions

Firstly, let us summarize the arguments and evidence that have been considered in the previous Sections.

In Section 1 we considered the arguments put forward by Morin and St-Amout (1977) in support of the analysis of all infinitivals as VPs at the levels of both underlying and surface structure and in both Old French and Modern French.

In Section 2 we saw how additional evidence in support of the VP surface structure for infinitivals in Old French is provided by the analysis, in

particular that of Rizzi (1976, 1978), of parallel material from Modern Italian.

On the basis of the arguments presented in Sections 1 and 2 we concluded that evidence supporting surface VP infinitival complements in Old French is sufficiently convincing, but that later developments in French do not lend similar support to such an analysis.

In Section 3 we examined a number of aspects of the material in a set of data from early Old French. We found that the data from this period shows clear evidence of differentiation in infinitival complement types in terms of case marking, and also exhibits differing tendencies according to governing verb type. The evidence put forward refuted the claim of Morin and St-Amour (1977) that the 'accusative + infinitive' with transitive infinitives was not viable in this stage of Old French, and also refuted the claim of these authors that all verbs governing infinitival complements of the class (2) structure behave alike in terms of the infinitival complement types with which they associate.

We then examined further aspects of the data collection in order to consider what evidence could be obtained that could shed some light on the analysis, in particular, of the constructions with transitive infinitival complements. We considered hypotheses put forward by Norberg (1945) as to the historical development of the constructions in question, in particular the proposal that fluctuation between accusative and dative case marking is an inheritance from Latin and that the syntactic bifurcation in Romance, such as with *faire*, developed under conditions of a close unity between governing verb and infinitive. The latter argument we found of particular interest, since the 'unity' notion seemed to reflect the conclusion of the discussion in earlier sections in support of the surface VP analysis for infinitival complements in Old French. Further examination of aspects of word order in constructions with transitive infinitives led us to the conclusion that variance between dative and accusative marking of subjects of infinitives in such constructions does not indicate additional syntactic distinctions.

All in all, the entrance of a new systematically defined set of data onto the scene of an old debate has caused some dust to be raised. However, I think it has been shown that the dust will not just settle back in the same configurations as before. The major alteration is that the governing verbs have been placed in patterns according to the behaviour that they exhibit. The question of what is under the surface of the individual patterns and under the schema as a whole will depend on the organization of the theoretical framework adopted. The interpretation of the patterns may be available directly from the surface configurations or, alternatively, may make reference to a further underlying layer of organization.

These theoretical questions require further elaboration.⁸ In the meantime, we have material for reflection in the suggestions of Norberg (1945) as to the notion of the possibility of a developing unit between a governing verb and its infinitive complement which may be comparable to the phenomenon of the development: *dicere habeo* (Lat.) > *dirò* (Ital.), *dirai* (Fr.), etc. ('I must speak' > 'I will speak' = Fut.). The dust has not yet settled.

NOTES

¹The term 'clause union' stems from the original notion of 'verb raising' presented in Aissen (1974) and subsequently developed as 'clause union' in the Relational Grammar framework, as in Aissen and Perlmutter (1976). The aspect of the clause union analysis which concerns us here is that the derived surface structure in such constructions contains only one clause, that is, only one S node. The term can be applied in a general sense to other analyses which, for the same constructions, derive outputs with a single surface clause, including versions in Extended Standard Theory (e.g. Rizzi (1976, 1978), Burzio (1978)).

²As Rizzi points out (fn.26) the paradigm is logically completed by:
 (i) Maria è dovuta venirci molte volte.
 which, in fact, seems to be acceptable. The facts are not perfectly clear, but sentence (ii) is parallel to (i) and is unacceptable.
 (ii) *?Siamo potuti venirci solo poche volte.
 'We have been able to come here only a few times.'

³The data, however, does not include perception verbs with clausal complements, which are semantically distinct from the infinitive complements, e.g.: (i) je le vois venir
 'I see him coming'
 (ii) je vois qu'il est venu
 'I see that he came'

In (i) the governing verb voir is used with a 'perception' meaning implying a response of the senses, whereas (ii) implies a mental process close in meaning to a statement like 'It is apparent to me that he came.' I believe that such a degree of difference in meaning between constructions with infinitival and clausal complements is not observed with the other verbs collected in the sample.

⁴Including the following example in contrast with (35e):

- (i) Mais qu'um li peüst bien faire iglise voidier.
 'since one might will make him (dat.) leave the church'

⁵Cf. the use of the dative with clausal complements of the infinitives
 in: (i) Richart lor a rendu, pui^z lor a fait entendre
 qu'il l'avoit tant tenu por cortoisie aprendre,
 et norrir en sa court tant que le veist rendre. (Rou 2125-7)
 (ii) Iluec voleit il faire as evesques jurer
 Que nul d'els pur apel ne passereit mais mer (Beck 2644-5)

⁶Cf. (i) A duze hummes fereit la verité prover, (Beck 2428)
 'he would have 12 men prove the truth'

⁷The verb laier is included in the grouping with laisser and the perception verbs because it is a morphologically distinct variant of laisser. However, its use varies from that of laisser, as it is reserved largely for the future tense and for constructions with the negative as: NEG + laier + clause. The totals for laier included in Table H are: A = 2, B = 22, C = Ø.

⁸which will be undertaken in Pearce (in preparation).

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THE EVOLUTION OF ERGATIVE SYNTAX IN NEPALI

William D. Wallace

While the Eastern Indian languages developed nominative/accusative syntax in the perfective tenses, and the Western Indian languages preserved the ergativity of the Old Indo-Aryan perfective participle, which was inherited as a past tense by all the Modern Indo-Aryan languages, Nepali developed "western" morphology with "eastern" syntax. The syntax of the Nepali perfective tenses, however, appears to be historically motivated rather than amalgamated from the syntax of juxtaposed languages. Beginning with its earliest records (c. 1350 A.D.), there is evidence that Nepali has modified the ergative perfective participle by using pronominal affixes in the perfective past and the conjugated auxiliary cha in the compound perfective tenses to agree with the underlying subject/agent rather than the ergative subject. An ergative postposition le is introduced in the 16th century into those environments in which ergativity had been inherited from OIA, but by the 18th century, this postposition was spreading to mark "nominative" transitive and intransitive subjects. A new form of the perfective participle arose in attributive clauses in the 16th century, and the ergative syntax of these clauses spread to main clauses with the compound perfective verbs. Thus, ergativity was reintroduced into the language, although the construction in which it appears is eventually regularized to conform with the nonergative perfective tenses. In this paper I discuss these developments and show how the syntax of the Nepali perfective tenses fits into the larger Indo-Aryan context. The data presented here have bearing on recent research on how change progresses in a grammar through variation and also on recently proposed restrictions on syntactic change in an EST framework.

The study of ergative syntax in Nepali involves principally the study of its elimination from the language. Both the earliest and most modern forms of Nepali do not exhibit the common forms of ergative syntax found in the contemporary Western Indian languages; but during its history, Nepali reintroduces ergative syntax into the perfective tenses and eliminates it once again. And the means by which Old Nepali becomes partially ergative is the same as that by which the early Modern Indo-Aryan languages inherited ergativity from OIA--the development of an attributive past participle as a compound verb with ergative syntax.

In this paper I shall discuss the syntax of the Nepali perfective tenses from 1350 A.D. to the present; I shall be concerned with the simple past and present/past perfective tenses, agent-marking, parallel developments in

various Indo-Aryan languages of the area, and the influence of Tibetan languages on the Indian languages of the Himalayan region. The scope of such a study is vast; the data are often mysterious; and the details that need discussion are too numerous to treat completely in this paper. But the lines of development are clear, and I have attempted to examine relevant aspects of the topic in as much detail as is necessary.¹

This study is divided into the following sections:

1. The Modern Indo-Aryan Perfective Tenses
2. A Linguistic History of Nepal
3. A Guide to Terminology and Nepali Forms
4. Old Malla Nepali
5. Old Shah Nepali
6. The Agent Marker *le*
7. The Nepali Perfective Participle
8. The Nepali Perfective Past Tense
9. The Nepali Compound Perfective Tenses
10. Conclusions

One new concept is introduced in order to better discuss the Nepali data: agentive syntax. By using this concept, I want to contrast ergative and nominative syntax, in both of which the unmarked term controls verb agreement, with the situation in Nepali where the subject term--whether marked or unmarked--controls verb agreement. Essentially, agentive syntax represents the combination of nominative verb agreement with ergative NP marking.

1. The Modern Indo-Aryan Perfective Tenses.

1.1. The reflexes of the Old Indic perfective passive participle in *-ta*, which came to be a generalized past tense in Middle Indo-Aryan, have generally followed two paths: (1) the perfective tenses of the Western Indian languages (e.g., Hindi-Urdu, Gujarati, Marwari, Braj Bhakha) have preserved the ergative character of this OIA participle, while (2) the perfective tenses of the Eastern Indian languages (e.g., Bengali, Assamese, Awadhi, Maithili) have eliminated ergativity, so that the perfective tenses in these languages are nominative/accusative in syntax like the present, future, and other tenses of both the Eastern and Western languages.

In Sanskrit, the *ta*-participle is ergative, so the subjects of intransitive verbs (1) and the objects of transitive verbs (2) control verb agreement, and the agent or logical subject of transitive verbs appears in the instrumental case (2):²

- (1) a. *ye 'yam atra snānārtham āgatā* (16.1)
 who she-FS-nom. here to bathe go-pp-FS-nom.

'she who came here to bathe'

- b. *kanyāvacanād rājā 'nyatra gataḥ* (100.9)
 girl-call king-MS-nom. away go-pp-MS-nom.

'at the girl's bidding, the king went away'

- (2) a. tato rajñā ''dareṇa kanyā prṣṭā (100.5)
king-MS-ins. girl-FS-nom. ask-pp-FS-nom.
'then the king respectfully asked the girl'
- b. etāvati bhagavatyaḥ hiranyavatyaḥ svapno dattaḥ (98.1)
Devi-MS-ins. dream-MS-nom. give-pp-MS-nom.
'at that time Devi sent a dream to Hiranyavati'
- (Source: Vetālapañcaviṃśati, Emeneau 1934)

In Hindi-Urdu, the past tense and the present perfect tense--both formed with the past participle--are ergative. The sentences in (3) show that the subject controls verb agreement for an intransitive verb, while those in (4) show that the transitive verb agrees with its direct object, unless the direct object is marked with the postposition *ko*. In this last case (4d, 4f), the verb appears in the neutral third singular masculine form.

- (3) a. laṛkā āyā 'the boy came'
boy-MS come-pp-MS
- b. ve laṛkiyā calī 'those girls left'
those girl-FP go-pp-FP
- c. maī calā hū 'I have left'
I-MS go-pp-MS be-1S
- (4) a. rām-ne kitāb paṛhi 'Ram read the book'
-agt. book-FS read-pp-FS
- b. laṛkiyō-ne khānā khāyā 'the girls ate the food'
girl-FP-agt. food-MS eat-pp-MS
- c. maī-ne phal torē 'I plucked the fruit'
I-agt. fruit-MP pluck-pp-MP
- d. rām-ne sitā-ko dekḥā 'Ram saw Sita'
-agt. -dat. see-pp-MS
- e. bhāi-ne patr likhā hai
brother-agt. letter-MS write-pp-MS be-3S
'the brother has written a letter'
- f. kamlā-ne naukrāni-ko bulāyā hai
-agt. servant-FS-dat. call-pp-MS be-3S
'Kamla has sent for the maid servant'

(Source: Central Hindi Directorate 1975)

On the other hand, in Modern Awadhi, intransitive and transitive verbs agree with the subject, and the subjects of both intransitive and transitive sentences appear in the unmarked nominative case:

- (5) a. mai gaẽũ 'I went'
I-MS go-pp-1S
- b. mai gā hāũ 'I have gone'
I-MS go-pp-S be-1S
- c. mai dēkhẽũ 'I saw'
I-MS see-pp-1S
- d. mai dēkhẽ hāũ 'I have seen'
I-MS see-pp-1/2 be-1S
- (6) a. ui gāĩ 'they went'
they go-pp-3P
- b. ui gaẽ hāĩ 'they have gone'
they go-pp-P be-3P
- c. ui dēkhini 'they saw'
they see-pp-3P
- d. ui dēkhini hai 'they have seen'
they see-pp-3P be

(Source: Lakhimpuri dialect, Saksena 1971)

1.2. The preservative and eliminative historical developments which have produced this split in the Indian languages are well-documented in Hock 1981 and Stump To Appear. Briefly, we may cite the leveling of MIA case distinctions, the use of a dative/accusative postposition which blocks verb agreement with the direct object (cf. ko in Hindi-Urdu), and most importantly, the introduction of pronominal suffixes on the past participle agreeing with the agent as contributing to the loss of ergative syntax in the East;³ whereas in the West, an ergative postposition was often introduced to preserve agent forms (cf. ne in Hindi-Urdu), and agreement with the object was extended even to direct objects marked with the new dative/accusative postposition in a few languages, thus preserving the ergative pattern.

1.3. The perfective tenses in Modern Nepali represent a mixture of these two paths of development, for on the one hand, agents are marked with the postposition le (which is also the instrumental postposition), while on the other hand, the perfective verb agrees with the intransitive subject and transitive agent in person, number, and gender. Thus:

- (7) a. ma śyām-sita bajār gaẽ 'I went to the bazaar with Shyam'
I -with go-pp-1S
- b. maĩ-le bhāt khāẽ 'I ate dinner'
I-agt. meal eat-pp-1S
- (8) a. mero sathĩ kāṭhmāḍāũ-mā baseko cha
my-MS friend-MS -in stay-pp-MS be-3MS
'my friend has lived in Kathmandu'

- b. rām-le yo kitāp pareko cha
 -agt. this book read-pp-MS be-3MS
 'Ram has read this book'
- (9) a. hāmiharu hijo śikāgo-bāṭa ayāu
 we-pl.-agt. yesterday -from come-pp-1P
 'we came from Chicago yesterday'
- b. hāmiharu-le śyām-sita kurā garyāu
 we-pl.-agt. -with talk do-pp-1P
 'we talked with Shyam'
- (10) a. keṭiharu pāṭan gaeki chin
 girl-pl. go-pp-FP be-3FP
 'the girls went to Patan'
- b. keṭiharu-le kām gareki chin
 girl-pl.-agt. work do-pp-FP be-3FP
 'the girls have done the work'

(Cf. Clark 1963; Verma & Sharma 1979)

In addition, it is not uncommon to find the ergative marker le extended to transitive subjects in other tenses (cf. Clark 1963: 92, 126):

- (11) a. rām-le kām garlā 'Ram will do the work'
 -agt. work do-3S-fut.
- b. rāme-le ali din-pachi ghaḍi pāūcha
 -agt. few day-after watch get-prs.-be-3S
 'Rame will get a watch in a few days'

1.4. The evolution of the Nepali ergative system has received little, if any, attention, although the synchronic aspects of Nepali ergativity have been discussed by various linguists, e.g., Abadie 1974, Verma 1976, and Kachru & Pandharipande 1979. Grierson (1916, iv: 26-27) suggests that the development of this mixed system occurs through the influence of Tibetan languages, some of which use an ergative marker for the agent in all tenses. In Tibetan, for example, intransitive subjects (12) and direct objects (13) are unmarked, while agents of transitive verbs occur in the ergative case (13):

- (12) a. sang-nyi yok-po dro-kí-re
 tomorrow servant-nom. go-fut.
 'the servant will go tomorrow'
- b. kho shí-ga-tse ne pha-ri ché-ne bang-toḱ' la
 he-nom. from via to
chhim-pa-re 'he went from Shigatse to Bangtok via Phari'
 go-pst.

- (13) a. yok-pō kho dung-gi-du 'the servant is beating him'
 servant-agt. he-nom. beat-prs.
- b. khō nga-la dung-song 'he beat me'
 he-agt. I-obj. beat-pst.

(Sources: Bell 1919; Roerich & Lhalungpa 1972)

However, Tibetan ergativity is a nominal-marking system; verbs need not agree with any NP in the sentence. While the close contact Nepali speakers have had with speakers of Tibetan languages may explain the extension of le to other tenses beside the perfective ones, it cannot account for the verb agreement system of either Modern Nepali or older forms of the language.

Below, I shall sketch the history of Nepali ergative syntax in the perfective tenses from the earliest records (c. 1350 A.D.) through developments in the modern language. In this examination of the evidence, I shall point out: (1) Nepali eliminated ergative verb agreement very early in its history; (2) ergative syntax is later reintroduced through the development of a new perfective participle and is lost again in the early modern period; (3) Tibetan models may have influenced the syntax of Nepali, but the "influence" seems to be an areal phenomenon; (4) although Modern Nepali mixes "western" and "eastern" syntax in the perfective tenses, developments in Nepali ergativity can be motivated historically.

2. A Linguistic History of Nepal.

2.1. The earliest recorded Nepali is found in the inscriptions and decrees of the Indo-Aryan Malla rulers of Nepal's Karnali River Basin. This Malla dynasty controlled an area including Western Nepal, the Kumauni and Garhwali regions of Northern India, and portions of Southwestern Tibet between the 10th and 14th centuries (Tucci 1956; Petech 1958; Regmi 1966, I: 710-735). In the late 14th century, the Malla line ran out, and the cities of the kingdom passed into the hands of various petty rulers (Tucci 1956: 121-128; Stiller 1973: chap. 2; Regmi 1975, I: 1-28).

The inscriptional records from about 1500 A.D. show a mixture of dialects, but the principal one is that of various Indo-Aryan rulers of Western Nepal city-states, one family of which--from Gorkha--conquered and unified what is the present-day kingdom of Nepal in the 18th century.

I shall refer to the language of the inscriptions up to c. 1450 A.D. as Old Malla Nepali after the old ruling family, and the language from about 1500 to 1800 as Old Shah Nepali after the subsequent rulers of Nepal.⁴ As we shall see, the language of the Shahs is quite different from that of the Mallas, particularly with respect to developments in the syntax of the perfective tenses.

2.2. The origins of these Indo-Aryan peoples of Nepal and Northern India have been much discussed by modern linguists and historians (cf. Grierson 1916, iv: 1-18; Hodgson 1833; Bendall 1903; Tucci 1956; Petech 1958; Regmi 1966, 1975; Pokharel 1974: 41-63). And adding to the interpretation of

linguistic and cultural evidence are several vaṃśāvalis or chronicles, of various ruling families (Wright 1877; Hasrat 1970; Regmi 1966, III-IV).

In general, it is accepted that the later Indo-Aryan rulers of Nepal, the Shahs of Gorkha, originate in Rajputana and flee to the Northern regions during the 11th to 15th century Muslim invasions and conquest of central India. Indeed, one Gorkha vaṃśāvali traces that family back to the city of Udaipur in the Mewari district of India (Wright 1877: 273ff.).

Support for this explanation comes from the many similarities between the Pahāri languages--Nepali, Kumauni, and Garhwali--and the languages of Rajputana. For example, both the Rajasthani and Himalayan languages have o in the singular and ā in the plural of strong masculine nouns, whereas the other Western languages have a and e, respectively (Kellogg 1893: \$155, \$169-170, and Table III). Also, the Western Rajasthani languages and the Pahāri languages have developed a future in -l- (as well as Marathi); thus, Marwari mārūlo, Nepali mārūlā 'I will strike' (Beames 1872-1879, III: \$55; Kellogg 1893: \$502, \$514, \$523, and Table XX; Bloch 1914: \$240-242; Chatterji 1926: \$728).

2.3. When these Indo-Aryan tribes came to Nepal is not so easy to establish. We must assume that some, e.g., the Mallas, had been in the Himalayan regions for several centuries prior to their first, extant inscriptions. And if we can believe the Gorkha vaṃśāvali, that particular family arrived in the late 15th century. However, it's probably more reasonable to think of these regions as being settled in waves from Rajputana, the new-comers gradually marrying into or taking over the already-settled Indo-Aryan peoples. So, both Old Malla and Old Shah Nepali may have existed in the region for several centuries, but only the ruling families would be likely to leave records for any one period, thus producing the apparent view of succession in real time.

Certainly, the evidence of religion would support this view. The Mallas were probably Buddhists, for they always invoke Buddha, Dharma, and Sangha in their inscriptions. But there was no doubt a sizeable Hindu population, as occasionally their inscriptions also cite Brahma, Visnu, and Isvar. The Gorkhas are Hindu, and most of the Tibetan tribes of the region mix elements of Buddhism and Hinduism in their religious practices (Wright 1877: chap. 2; Hodgson 1874; Tucci 1956: 109-112).

2.4. Beside the various dialects of Nepali, of course, numerous Tibeto-Burman languages were and are spoken in Nepal (Grierson 1909, i). The principal Tibetan language of medieval Nepal was Newari, the language spoken by the Tibetan rulers of the Nepal Valley, i.e., the cities of Patan, Bhatgaon, and Kathmandu. These kingdoms had flourishing civilizations during the time of political fragmentation of the Indo-Aryan tribes in Western Nepal (Regmi 1966), although they all eventually fell to Prithvinarayan Shah in the late 18th century.

There was contact between the Newars and the Indo-Aryans, as evidenced by inscriptions and decrees from the Nepal Valley written in Nepali (e.g., Clark 1957), and the influence on the Newari language (Regmi 1966, II: 826ff.).

In addition, the Eastern Indian languages, Awadhi, Bengali, and Maithili, were used in the courts of the Newar kings (Chatterji 1926: 10). And many dramatic works are found written in Maithili at the Newar courts (Regmi 1966, II: 844-846).

So, in addition to there being various Nepali dialects, determined by region and settlement patterns, we find in Nepal the conditions for contact among Nepali, the Eastern Indian languages, the Western Indian languages, old Himalayan Indo-Aryan dialects, and the indigenous Tibetan languages.

3. A Guide to Terminology and Nepali Forms.

3.1. Before presenting the Old Nepali data, I think it will be useful to explain a number of terms and forms that appear in this study with meanings specifically related to the Nepali data, which may not coincide with their general meanings in other literature.

3.2. First, we shall be concerned with verbs formed from the perfective participle, of which we must distinguish two forms in this data. The old Nepali perfective participle is formed with the verb root plus the suffix yo/yā. The verb stem + yo/yā form is that inherited from Middle Indo-Aryan, and it is the form we find in Old Malla Nepali data.⁵ In Old Shah Nepali, a new form of the perfective participle also appears, verb stem + yā + ko, in which the ko appears to be the genitive postposition. As we shall see, the verb stem + yā + ko form is extended to most environments in which the verb stem + yo/yā form was found. In order to distinguish these forms, I shall refer to them as the yā-participle and the yāko-participle.

3.3. There are three finite tenses formed from the perfective participle which shall be discussed in this study. One is the simple past or perfective past which in Nepali is formed with the yā-participle plus personal endings, e.g., garyā 'I did', garyo 'he did', garyāu 'we did'. These endings are the same for transitive and intransitive verbs. Primarily, the Nepali data on the simple past comes from Old Shah Nepali, but most of the Indo-Aryan languages use the perfective participle alone as a past tense, so we can assume it existed in Old Malla Nepali too.

The other two tenses are compound perfect tenses--the present perfect and past perfect--which are formed with the perfective participle and the conjugated auxiliary verb in the present (cha) or past (thiyo), respectively. As there are two forms of the perfective participle, there are two forms for each of the present and past perfect tenses. In Old Malla Nepali, we find these tenses formed with the yā-participle; but in Old Shah Nepali, we find these tenses formed with the yā-participle and yāko-participle. So, to distinguish them in the later period, I shall refer to them as the yā-perfect and yāko-perfect (since we will primarily discuss the present perfect, that will be the unspecified case, and the past perfect will be specified when necessary).

In addition to these finite tense forms, the perfective participle can be used as the main verb of dependent clauses.

3.4. As for syntax, we must note that we are dealing with participles for most of this study, and so agreement in number and gender with the modified NP will be found with these verb forms, though not always.

In order to refer to the controlling NP, we must discuss what constitutes the "subject" of these various verb forms. The perfective participle as inherited from OIA is ergative; however, that syntax has not been retained in the Nepali tenses. I shall here describe the syntax found in the perfective tenses in this data; after Dixon 1979, I shall use A (transitive subject/agent), S (intransitive subject), and O (transitive direct object) to refer to the various NPs in a sentence.

In ergative syntax, the S and O are unmarked and they both control verb agreement, while the A is marked:

- (14) a. chori pāṭan gaeki che 'the girl went to Patan'
girl-FS go-pp-FS be-3FS
- b. sipāiharu pāṭan gaekā chan 'the soldiers went to Patan'
soldier-MP go-pp-MP be-3MP
- c. *rām-le chori dekheki che 'Ram saw the girl'
-agt. girl-FS see-pp-FS be-3FS
- d. *rām-le sipāiharu dekheka chan 'Ram saw the soldiers'
-agt. soldier-MP see-pp-MP be-3MP

*not grammatical in Modern Nepali

In nominative syntax (or nominative/accusative syntax), the S and A are unmarked and control verb agreement, while the O may be marked:

- (15) a. ma pāṭan jānchu 'I go to Patan'
I go-prs.-be-1S
- b. sipāiharu pāṭan jānchan 'the soldiers go to Patan'
soldier-MP go-prs.-be-3MP
- c. ma rām-lāi dekhchu 'I see Ram'
I -dat. see-prs.-be-1S
- d. sipāiharu rām-lāi dekhchan 'the soldiers see Ram'
soldier-MP -dat. see-prs.-be-3MP

Agentive syntax I shall use to describe the situation in which S and A control verb agreement, S is unmarked, O may be marked, and A is always marked:

- (16) a. ma pāṭan gayā 'I went to Patan'
I go-pp-1S
- b. sipāiharu pāṭan gayā 'the soldiers went to Patan'
soldier-MP go-pp-3MP
- c. maī-le rām-lāi dekhyā 'I saw Ram'
I-agt. -dat. see-pp-1S

- d. sipāiharu-le rām-lāi dekhyā 'the soldiers saw Ram'
 soldier-MP-agt. -dat. see-pp-3MP

Each of these three terms--ergative, nominative, agentive--represents a specific system of verb agreement and NP marking; and each represents a syntactic system which can be found in this Nepali data. A major point in this research is that Nepali evolved an agentive syntax in the perfective tenses from the ergative syntax inherited from MIA, and it is the processes through which this agentive syntax developed with which this paper is concerned.

3.4. In summary, I present Table 1 which outlines the tenses and syntax found at the major stages of the language to be discussed in this study.

<u>Time Period</u>	<u>Tenses Found</u>	<u>Their Syntax</u>
Middle Indo-Aryan (pre-1300/1400)	perfective past	ergative
	<u>yā</u> -perfect	ergative
Old Malla Nepali (c. 1350-1450)	(perfective past)	(?)
	<u>yā</u> -perfect	ergative/agentive
Old Shah Nepali (1500-1800)	perfective past	agentive
	<u>yā</u> -perfect	agentive
	<u>yāko</u> -perfect	ergative
Modern Nepali	perfective past	agentive
	<u>yā</u> -perfect	agentive
	<u>yāko</u> -perfect	agentive

Perfective Tenses in the History of Nepali

Table 1

4. Old Malla Nepali.

4.1. Pokharel 1974 gives five Nepali inscriptions of the Mallas dating from 1336 to 1376 A.D., and five inscriptions of their immediate successors in the region dating from 1393 to 1437. These ten inscriptions, representing Old Malla Nepali (OMN), are repetitious and formulaic, so they really don't provide all the evidence we would like for describing the grammar of the language. Certain aspects of the perfective tense system, however, are clear.

Examples of intransitive (20) and transitive (21) verbs in the perfective tenses are given below:⁶

- (20) a. sūryagrahaṇa sarvakar akar kari ālā 5
 sun-eclipse all-tax exempt do-cp field-MP
pasā bhayā (1337)
 gift be-pp-MP
 'on the occasion of the eclipse of the sun, having exempted
 them from all taxes, these five fields have become a gift'
- b. viutharpu rāja kari akryā bhāṣā pasā bhai (1337)
 rule do-cp exempt-pp bond-FS gift be-pp-FS
 'having been authorized in Piutharpu, this tax-free bond
 has become a gift'
- c. mahārājādhirāja valirājā-ki mayā bhaicha (1398)
 -gen.-FS gift-FS be-pp-FS-be-3S
 'this was a gift of Maharaja Baliraj'
- d. rāmadāsa pādhyā tin lāya sudā mayā bhaicha (1398)
 three for with gift-FS be-pp-FS-be-3S
 'this was a gift for Ramdas Padhya and three others'
- e. udaivrahma ājita vrahma-lai mās vastā-ko cauṭhāg
 -agt. month property-gen.-MS quarter
toli ṣet-udho dhig vagaḍ-ghaṭṭa ḍāmarpāṭā-ko
 lower field-up to hillock river bank-watermill -gen.-MS
cauṭhāg ekatra ghāli pasā bhayo cha (1437)
 quarter together put-cp gift be-pp-MS be-3S
 'through Udaya Brahma and Ajita Brahma, there has become a
 gift of a quarter of Damarpata including the river bank,
 watermill, and hillock up to the lower field together
 with a quarter of the monthly duty'

We can see that an intransitive verb in the simple past (20a,b) or present perfect (20c,d,e) agrees with its subject in gender and number.

- (21) a. asela ma pani ācādrārkaṣṭhāyi sarvavādhāvinirmukta
 now I also moon-sun-stand all-trouble-relieved
catuṣsimā paryanta viśuddha, sarvakara akar,
 four-border ends pure all-tax exempt
sarvasevāvirahit kanakapatra-ki bhāṣā kari śāsan
 all-service-free copperplate-gen.-FS bond-FS do-cp copy
doholi kari golhu joisī pasā kari akryā chū (1356)
 double do-cp -dat. gift do-cp exempt-pp be-1S
 'now I have granted this tax-free bond of this copperplate to
 Golhu Joisi, having made two copies, having freed from
 all service, having exempted it from all taxes, having
 made it pure to the four borders, having relieved it of
 all duty as long as the sun and moon endure'

- b. athāga ekatkalyāmā-ko jhusu joisī pasā kiya chū (1393)
 eighth -gen.-MS -dat. gift do-pp be-1S
 'I have given an eighth of Ekatkalyama to Jhusu Joisi'
- c. caudilāgāvā-ko ālo 1, hāku-ko ālo 1 yekatra ālā 2
 -gen.-MS field -gen.-MS field together field-MP
tile kuśe sahit sākāpa ghāli thāt kari
 sesame seed grass with avowal place-cp decide do-cp
śiūsarma visnudāsa pasā kiya chāu (1404)
 gift do-pp be-1P
 'having made the decision, having made the avowal with sesame seed, we have granted Shiva Sharma and Visnu Das together two fields, one from the Caudila village, and one from Haku'
- d. ādhu joisi somnātha caḍāi sivanirmāila gari
 lift-cp -pure do-cp
pasā ki akryā chāu (1437)
 gift do-pp exempt-pp be-1P
 'having done the sacrifice in Somnath and made it Shivapure, we have granted this to Andhu Joisi'

The sentences of (21) show that the agent of a transitive verb in the present perfect can control verb agreement in number and person with the auxiliary. (No examples are found in this data of transitive verbs in the perfective past with agents expressed.)

4.2. The transitive verb phrases that appear in these texts present some etymological problems, because the past participle found most frequently akryā has no equivalent verb in either Modern Nepali or Sanskrit. But internal evidence points out that we should accept it as the perfective participle of a verb *akr- 'to grant a gift, to exempt from duty'.

4.2.1. All the sentences in (21) are Nepali versions of common Sanskrit formulas found in copperplate inscriptions throughout India, as we can see by comparing them with the two Sanskrit (22a,b) and one Oriya (22c) inscriptions below:

- (22) a. mayā ... chūyipākō nāma grāmaḥ ... t[r]i-chatvāṛīśad-
 I-ins. name village-MS-nom.

ātharvvaṇi-ka-kulē-bhyō=grahārīkkṛitya datta[h]
 family-P-dat. land-grant-cp give-pp-MS-nom.

'I have given the village named Chuyipaka as a land grant to forty-three families of Brahmans who study the Arthava-Veda'

(Source: Fleet 1883. Date: 628 A.D.)

- b. bhikṣuṇām dvijadharmabhāṇakāṇām sūtradhārakāṇām ca /
 -P-gen. Brahman-preacher-P-gen. artisan-P-gen. and
nijarāṇye sarvakarās tenā ācamdrārkatārakam tyāktāḥ
 kingdom all-tax-MP-nom. he-ins.-moon-sun-endure relinquish-pp-MP-nom.
 'he has forgiven all the taxes of the Bhiksus, Brahmins,
 preachers, and artisans as long as the sun and moon endure'
 (Source: Tucci 1956. Date: 1354 A.D.)
- c. puruṣottamapura śāsana bhumī caudasa-aṣṭottara
 rent-free-estate land
bā 1408 ṭi dāna deluḥ
 gift give-pp-1s
 'I have given 1408 batis of land as a rent-free estate'
 (Source: Tripathi 1962: 284-285. Date: 1472 A.D.)

In such phrases expressing the acts of giving or of exempting estates from taxes, we expect to find a verb of giving in the perfective tense. In the Sanskrit example (22a), the form is the ta-participle of dā 'to give'. In the Sanskrit example (22b), we find the perfect participle of tyaj 'to relinquish'. And in (22c), we find the Oriya reflex of the ta-participle, de-l-, which is not ergative but is still the Oriya perfective past tense. Thus, *akr- by context should be a verb of giving in the perfect in the OMN inscriptions.

4.2.2. The verb *akr- is also found paralleling injunctive forms in these texts:

- (23) a. yo bhāṣā abhayamalla-ki sākḥā pasā ki
 this bond-FS -gen.-FP descendents gift do-pp-FS
akra joisi mahirāja joisi-ki sākḥā celi-ko
 exempt-inj. -gen-FP descendents daughter-gen.-MS
celo ādi bhūca (1376)
 son etc. enjoy-inj.
 'let the descendents of Abhayamalla grant this bond; let the
 descendents of Joisi Maharaja, the sons of daughters, etc.
 enjoy this'
- b. medini brahma-ki śāṣā celi-ko celo
 -gen.-FP descendents daughter-gen.-MS son
pasā kara / dattu joisi deurāja joisi jhusu
 gift do-ins.
joisi-ko celi-ko celo bhūca (1393)
 gen.-MS daughter-gen.-MS son enjoy-inj.
 'let the descendents, sons of daughters, of Medini Brahma keep
 this promise; let the sons of daughters of Dattu Joisi,
 Devaraj Joisi, and Jhusu Joisi enjoy this'

So, use in context and the ability to be conjugated support the fact that *akr- is a verb.

4.2.3. Finally, the form of *akr- in the inscriptions parallels that of a verb like kar- 'to do', as in (21b,c). The yā suffix is the Nepali development of the MIA iā for the perfective affix. The suffix is added to the perfect verb stem, thus ki + yā 'done' and akr + yā 'exempted'.

So, despite the fact there is no Modern Nepali verb *akranu, meaning 'to bequeathe, to make tax-exempt', we can assume these forms represent periphrastic perfect verbs from an OMN verb *akr-.

4.3. It is also difficult to determine the form of the few expressed subjects of these transitive verbs. All we find is ma as in (21a). This must be some form of the first person singular pronoun, and it appears to be uninflected. At this stage of the language, such a form may well represent the leveling of nominative and instrumental pronoun case forms (Hoernle 1880: §430; Hock 1981), and so we can't really tell whether ma is instrumental or nominative.

4.4. The OMN data does provide some evidence for the IA ergative construction, as opposed to the examples presented in section 4.1. In (24a), the logical direct object eti vṛtti controls verb agreement with the past participle akri, while in the first clause of (24b), again the DO jo bhāṣā controls ki thi, a past perfect form.

- (24) a. eti vṛtti purvili ādityamalla rai-ko puṇyamalla rai-ko
 such grant-FS ancestors -gen.-MS -gen.-MS
tārādei gosāi tipāya himjiu-ki sūryagrahaṇa
 three clans -gen.-FS sun-eclipse
candragrahaṇa sākalpa ghali pasā kari akri (1356)
 moon-eclipse avowal put-cp gift do-cp exempt-pp-FS
 'in the three clans of Taradevi, Gosai, and Himjiu, having
 made the avowal at the time of the eclipse of the moon
 and at the time of the eclipse of the sun, such a land
 grant has been promised through our ancestors Adityamalla
 the king and Punyamalla the king'
- b. jo bhāṣā prthvimalla rai-kā pasā ki thi
 which bond-FS -gen.-MP gift do-pp-FS be-pst-FS
tai bhāṣā ma pasā ki akryā chū (1376)
 that-emp. bond I gift do-pp-FS exempt-pp be-1S
 'which bond had been promised by Prithvimalla the king,
 that bond I have granted'

In the second clause of (24b), the same verb phrase pasā ki appears, but here, the auxiliary verb chū agrees with the logical agent ma, and so the complete verb phrase agrees with the agent. In both ergative clauses, the logical agent appears in the genitive, marked by ko. Whether the genitive phrases in these sentences are agent phrases is unclear. The genitive

could be used for agents in Sanskrit (Speijer 1886: §114; Hock In Press), and it does appear marking agents in some Himalayan IA dialects (Grierson 1916, iv: 502, 570, 694). And if we look back at (20c) and (20e), we find formulaic sentence types with pasā/mayā bhayo 'there has been a gift', in which the logical agent is marked by the genitive (20c) or instrumental (20e), which also suggests there may be some variation in the use of these two cases in certain contexts.

These data raise some questions in the interpretation of the OMN data, which ultimately must be left without definite answers because of the lack of crucial evidence. It appears that like other early IA languages, OMN used the ergative construction; however, the only transitive sentences in which this can be readily apparent are those with feminine or plural masculine direct objects. Very often in other early IA languages, the agent and nominative noun phrase had no distinguishing marker/inflection; and very often neutral third singular masculine verb agreement is found (cf. Chand in Beames 1872-1879, II: §57).

In general, OMN forms such as ṽṛtti akri and ma pasā akryā could be accounted for by these early IA characteristics, in that the former DO clearly agrees with the verb, and the latter DO may or may not agree, i.e. the sentence is ambiguous as to verb agreement. However, the obvious alternations in the auxiliary verb dependent upon the first person agent in transitive sentences requires more explanation.

4.5. All the examples in which we find the ergative construction have third person subjects, and those in which the auxiliary agrees with the agent have first person subjects. This might be significant, for specialization of ergative and nonergative constructions in the perfective tenses for certain persons has occurred in Marathi (Hock 1981; Stump To Appear; Master 1964; Bloch 1914: §252; Kachru & Pandharipande 1979).⁷

In Old Marathi, there is a personal affix for second person agents with transitive verbs in the perfective tense (Master 1964: 132). Bloch (1914: 263-264) states that in Modern Marathi dialects, the construction in which the transitive subject is nominative and the verb agrees with it is strongest in the first and second persons, and in the third persons, the ergative and nominative constructions alternate. Grierson 1905 documents a variety of dialectal forms ranging from partial to full nominative systems with the perfective participle.

We can illustrate the Marathi situation with some data from the Konkani dialects. In (25), the agent suffix--s for second singular, n for third singular, ni for third plural--is added directly to the inflected perfective participle:

- | | | | | |
|---------|------------|--------------|------------------|-----------------------------|
| (25) a. | <u>tū</u> | <u>kām</u> | <u>kel-ē-s</u> | 'you have done the work' |
| | you-S-nom. | work-NS | do-pp-NS-2S | |
| b. | <u>tū</u> | <u>pothi</u> | <u>lihil-i-s</u> | 'you have written the book' |
| | you-S-nom. | book-FS | write-pp-FS-2S | |

- c. bāpā-n ... miḥī mārī-i-n ani
 father-MS-ins. embracing-FS strike-pp-FS-3S ins. and
te-tsō mukō ghētl-o-n
 him-to kiss-MS take-pp-MS-3S ins.
 'his father embraced and kissed him'
- d. saheba-nī ma-lā dil-e-nī 'the sahabas gave me a tip'
 -MP-ins. me-to give-pp-MS-3P ins.

(Sources: Bloch 1914: 262-263; Grierson 1905: 210-216)

In these forms, the third person agents (25c,d) are both marked with the instrumental postposition, and it is this postposition that is used as a suffix on the participle to indicate what the agent is. The second person form tū is nominative or instrumental, the two cases having fallen together, and the s suffix is borrowed from the second person personal endings used with intransitive perfective participles.

Two points of similarity appear between the OMN data and these Marathi forms. First, the first and second person agents are innovative in changing from the inherited ergative syntax to a syntax with a "nominative" subject and personal verb suffixes in the perfective tenses. Second, the innovation of agent verb marking is not as much a process of change in forms as it is a modification of the existing forms. Compare:

- (26) a. tū kām ke-l-ē-s Marathi
 2S-nom./ins. NS-nom. V-pp-NS-2S
- b. ma pasā akr-yā chū Old Malla Nepali
 1S-nom./ins.? MS-nom.? V-pp-MS? 1S

In both the Marathi and Nepali sentences, the agent is not distinguished as to case, and the verb is a form that could agree with the direct object, although in each case there is an addition to the verb phrase which marks the agent.

If the analysis of the OMN data is parallel to that of the Marathi evidence, it would offer us some explanation of the forms that occur in OMN. The tendency to mark a nonthird person agent on the perfective participle may be the starting point for the weakening of ergative agreement. As we shall see in the Old Shah Nepali data, personal suffixes are also used on the perfective participle to agree with the agent; the use of the conjugated auxiliary in the compound tenses may be a parallel development. First and second person agents may be more susceptible because pronoun forms can be leveled, thereby obscuring case distinctions, while third person agents and nouns are more likely to retain some form of marking, the instrumental postposition in Marathi, and perhaps ko or le (the genitive or instrumental) in Nepali. And, as in Marathi, a complete restructuring of the verb phrase is not necessary to advance this type of innovation. In Marathi, of course, the full range of verb forms is available, but in the Nepali of this period, we have only the feminine forms ki and akri and the nonfeminine forms kiyā

and akryā, which are probably incomplete, and/or may reflect the beginning of the Nepali two-gender system. In any event, their distribution is not sufficient to allow us to make definite conclusions.

4.6. We know then that OMN transitive verbs in the present perfect could agree with their agents, at least if the agent is first person. There is no apparent agent marker, but the case of the agent is indeterminate--we find the uninflected form ma, which could be nominative and agentive, and we find genitive phrases in some situations where third person agents are expected. Whether this represents a distinction made between nonthird persons and third persons, or pronoun vs. noun, or some other opposition, is not clear from this evidence. Evidence from Marathi suggests that non-third person marking may be a starting point for any innovations in perfective verb marking, but without further OMN evidence, we cannot really say whether the differences in syntax between sentences with first person agents and those with third person agents (in genitive phrases) is systematic.

5. Old Shah Nepali.

5.1. The language of the inscriptions after 1500 represents quite a different form of Nepali. For example, OMN uses the bare stem for most subject and object NPs, or anusvara for dative/accusative objects, but Old Shah Nepali (OSN) has a set of postpositions for the various case roles, including le for ergative/instrumental, lāi/kana for dative/accusative (cf. Wallace 1981); OMN has kar- for the stem of 'to do', but OSN has gar-; the perfective participle in OMN is formed from the verb stem plus yā, while in OSN we find yā and yāko for the perfective participle form, the latter apparently being yā extended by the genitive postposition ko; and OMN uses the nominative for the subject of injunctive verbs (27a), but OSN uses the ergative (27b):

- (27) a. chidyā-kā gāva-ki cari kāṭana kohi nā-pāva (1356)
 -gen.-O village-gen.-FS land to cut someone not-allow-inj.

'let not anyone be allowed to take away land from the village of Chidya'

- b. ānyā-ānyā svavāśa pravāśa kasai-le
 other-other own-descendent other-descendent someone-agt.
dharma na-ghāla (1529)
 not-destroy-inj.

'let not anyone, one's own descendents, someone else's descendents, or any other person, destroy this dharma'

5.2. The perfective tenses of OSN are much more fully documented than those of OMN, and they present a greater diversity of forms than those of OMN. We shall be concerned with three tense forms in OSN: first, the perfective past, which is formed from the yā-participle plus personal suffixes:

- (28) a. 7 rupiyā āglā 7 viśa rupiyā 53 thān kapaḍā
 each twenty cloth
ukildāra-tira lāgyā (1751)
 overseer-toward attach-pp-3MP
 'the overseers received seven rupees each, 140 rupees total,
 plus 53 thans of cloth'
- b. devatarppana pitaratarppana sādhya ādi
 god-oblation ancestor-oblation evening-oblation etc.
samasta karma jas-le garyo (1670)
 all who-agt. do-pp-3MS
 'whoever did all the duties, god-worship, ancestor-worship,
 evening-worship, etc.'
- c. śri rāghau josi-le śri viśveśvara sthāpanā garyā (1712)
 -agt. enshrinement do-pp-3MH
 'Shri Raghau Joisi established this shrine for Shiva'

second, the yā-stem present (and past) perfect, which is equivalent to the present perfect in OMN:

- (29) a. vāḍi-kā ṣet-mathi daśa mana 10 śākalpa bhayo cha (1679)
 stream-gen.-0 field-on 10 avowal be-pp-MS be-3S
 'a promise has been made for 10 manas of land on the flood-field'
- b. 2 ālā motipur-kā 2 ālā vaksi
 field-MP -gen.-MP field-MP give-pp
diyā chāu
 give-pp-MP be-1P (1529)
 'we have given two fields of Motipur'
- c. kusmapadhyā-le rājā-kā vacā pāyā bhaicha (1722)
 -agt. king-gen.-MP promise receive-pp-MP be-pp-be-3S
 'Kusmapadhyā has received the promise of the king'

and third, the yāko present perfect, which incorporates a new form of the perfective participle, introduced into the inscriptions in the 16th century:

- (30) a. teś uḍi-kā ṣet-mathi śākalpa bhayāko cha (1679)
 that flood-gen.-0 field-on avowal be-pp-MS be-3S
 'a promise has been made on that flood-field'
- b. van pāṣo inu tin janā-le hāmu diyāko cha (1590)
 forest hill these three man-agt. we-dat. give-pp-MS be-3S
 'these three men have given us the forest and hillside'

- c. musikoṭ-mā hāmra maiā diyāki hun (1800)
 -in our-H sister-FH give-pp-FH be-3H
 'our sister was married in Musikot'

In the perfective past and yā-perfect, the subjects of intransitive verbs and agents of transitive verbs control verb agreement, even though the agents are marked with the ergative postposition le. The agents of the yāko-perfect are also marked with le, but they are unable to control verb agreement. Subjects of intransitive yāko-participles control verb agreement, and direct objects of transitive yāko-participles may control verb agreement. The compound yāko-perfect tenses are ergative. The other two tenses are neither nominative nor ergative, for the subject of an intransitive verb is unmarked and controls verb agreement, the object of a transitive verb is also unmarked--unless animate--but cannot control verb agreement, while the agent is always marked and always controls verb agreement.

5.3. Whether the system illustrated by the perfective past and yā-perfect should be labelled "ergative" is debatable. Certainly, it would be useful to distinguish the syntax of these two tenses from that of the yāko-perfect which does conform to common definitions of ergativity.⁸ So, I shall adopt the term "agentive" for the situation in which all three terms--subject of intransitive verb, agent of transitive verb, and direct object of transitive verb--are treated differently.

5.4. Despite the fact that we know little about the perfective system of OMN, we can see there are two major differences between it and the perfective system of OSN. First, OSN has the agent marker le for transitive subjects and OMN does not. Second, ergative syntax in OSN is dependent upon the form of the perfective participle used in the present and past perfect tenses, whereas ergative syntax in OMN is (a) optional or (b) dependent upon the person of the agent.

The perfective past is not a particularly common form in the early literature, but we can reconstruct much of its history from its later form and comparison to past tense developments in other languages. The OSN yā-perfect appears to be a continuation of the yā-perfect in OMN, but the yāko-perfect is a new development. Below, I shall discuss the various aspects of the perfective system in OSN and their developments in later stages separately, beginning with the introduction of le, then moving to the perfective past, and finally to the two forms of the compound perfect tenses.

6. The Agent Marker le.

6.1. The introduction of ergative le in the 16th century coincides with that of ne in the Literary Hindi of the same period (Hoernle 1880: §311; Beames 1872-1879, I: 270; Kellogg 1893: §196), and so it is tempting to conclude that the settlers who spoke OSN had indeed come recently from Rajputana and brought with them the Western Indian concept of using an agent postposition, or that they reinforced its use among those Nepali

- c. parantu hāmi-le ta kapaṭ ta misnyā chaināu (1766)
furthermore we-agt. deceit mix-inf. be-neg.-1P
'furthermore, we will not tolerate deceit'
- d. mana-mā niścaya gari bīrabara-le cādikā debī-ko
mind-in certain do-cp -agt. goddess-gen.-MS
stuti garcha (1824, V4)
praise do-prs.-be-3MS
'having decided, Birbar praises the goddess Candika'
- e. kyān bhanaulā vāhiḍā mānchyā-le darvār-mā
why say-2P-fut. outside man-agt. palace-in
vithiti garāūchan (1775)
treachery do-cause-prs.-be-3MP
'why do you say that foreigners would cause disorder in the palace?'
- f. mai-le hūkāra garāūlā (1825, V7)
I-agt. command do-cause-1S-fut.
'I will have you do my command'

In addition, we can also find le marking the subjects of intransitive verbs:

- (33) a. tava vyādhā-le tas talāu-mā pāni pani āyo (1776)
then hunter-agt.that pool-in water also come-pp-3MS
'then too the hunter came to the water in that pool'
- b. samudradatta-le ratnadīpa-le ujyālo bhayāko koṭhā-mā
-agt. good-lamp-ins. light be-pp-MS room-in
sutnā-kana calyo (1825, V3)
to sleep-obj. move-pp-3MS
'Samudradatta went to sleep in a room lit by a beautiful lamp'

6.3. It is not common among the Western Indian languages to use the ergative marker in this way (cf. Kachru & Pandharipande 1979); however, two factors--one internal, one external--have probably contributed to the spread of le into these environments in Nepali. The first factor we shall consider is the structure of reduced clauses formed with the conjunctive participle and the interaction of these clauses with main clauses through the rule of conjunction reduction; and the second is the distribution of ergative syntax in the languages with which Nepali speakers are in contact.

6.3.1. The conjunctive participle in -i, in more modern texts also -era (from -i plus ra 'and'), and also -ikana (from -i plus kana, the old dative/accusative postposition), is formed with the perfective stem of the verb; thus, it is a perfective participle and should exhibit the properties of other perfective participles in the language, including ergative syntax. A construction with a conjunctive participial clause indicates two actions that closely follow one another or occur at the same time, or two actions

one of which causes the other. When the underlying subjects of the two clauses are identical, conjunction reduction applies; thus, the agent or subject of the dependent clause would be deleted under identity with the agent or subject of the main clause (34a,b,c), and vice versa (34d,e,f).

- (34) a. jethābā-ko chorā mahinā din-ko
father's eldest brother-gen.-MS son-H month day-gen.-MS
bidā pāera hijo kalkatā-bāta ghar āe
leave get-cp yesterday -from house come-pp-3MH
'yesterday my cousin came from Calcutta on a month's leave'
- b. u bimār bhaera maryo
he sick be-cp die-pp-3MS
'he became sick and died'
- c. sāmān bokne mānche-le ek chin aṛiera ārām garyo
luggage carry-inf. man-agt. one moment halt-cp rest do-pp-3MS
'the man carrying the luggage stopped and rested for a moment'
- d. mai-le tyas-lāi bheṭera ghar-mā gaē
I-agt. he-dat. meet-cp house-in go-pp-1S
'after I met him, I went home'
- e. us-le bikh khāera maryo
he-agt. poison eat-cp die-pp-3MS
'he died from eating poison'
- f. ma turanta bāhira dagurera gaṭkana merā
I at once outside run-cp go-cp my-MP
chimekiharu-lāi sodhē
neighbor-pl.-dat. ask-pp-1S
'I immediately ran outside and asked my neighbors'
- (Sources: Clark 1963: 160-177; Meerendonk 1949: 103-105)

In these examples from Modern Nepali, the "nominative" NPs chorā and u in (34a,b) are expected subjects for the intransitive main verbs āe and maryo, respectively, while the ergative NP mānche-le is expected for the perfective transitive verb garyo in (34c). On the other hand, the main verbs of (34d,e) gaē and maryo are intransitive, so the surface subjects mai-le and us-le, respectively, are the agents of the transitive conjunctive participles bheṭera and khāera, and it is these ergative NPs that must control deletion of the main verb subjects, which would be nominative. Similarly, the nominative NP ma, the subject of either intransitive dagurera or gaṭkana, must control deletion of the expected ergative agent of sodhē in (34f).

As we can see in the modern examples in (34) and the OSN examples in (35), nominative subjects and ergative agents are treated as being alike by the rule of conjunction reduction; therefore, conjunction reduction must be sensitive to underlying or logical subjects rather than just surface roles.

In (35a,b), the underlying subjects of the main clauses are marked as ergative on the surface, and they have controlled deletion of the subjects of intransitive conjunctive participial phrase; while in (35c), the subject of an intransitive main verb controls deletion of the agent of a transitive participle.

- (35) a. buḥḍiyā-le pani ina-ko taraha heri ba(huta)
 old woman-agt. also them-gen.-MS type see-cp very
khusi bhai ādarapūrbaka gharā-mā basāi (1825, V1)
 happy be-cp respect-custom house-in stay-cause-pp-3FS
 NB: heri--trans.; bhai--intrans.; basāi--trans. & perf.
 'the old woman, having seen what kind of men they were,
 happily lodged them in her house with respect'
- b. mai-le śmaśāna-mā basi mātra sādhana garnu cha (1825, V1)
 I-agt. cemetery-in stay-cp practice to do be-3MS
 NB: basi--intrans.; garnu cha--obligational & erg.
 'I, seated in the burying ground, must do some incantations'
- c. rājaputra pani tasai mātrikanyā-ko hṛdaya-mā
 prince also that-emp. minister-daughter-gen.-MS heart-in
dhyāna rākhi āphnā nagara-biṣe calyā (1825, V1)
 attention place-cp self city-in move-pp-3MH
 NB: rākhi--trans.; calyā--intrans. & perf.
 'the prince, thinking only of the minister's daughter in his
 heart, returned to his own city'

In sentences like those in (35), it is clear which subject has been deleted by conjunction reduction: in all three of the above cases, the subject of the embedded participial clause has been deleted. However, when both subjects are nominative on the surface (36a), or both are marked as ergative NPs (36b), then the structure of the sentence is ambiguous as to which NP has been deleted.

- (36) a. rājaputra ghoḍā-mā aśvavāra bhai calyā (1825, V1)
 prince horse-in mounted be-cp move-pp-3MH
 NB: bhai--intrans.; calyā--intrans. & perf.
 'the prince left mounted on a horse'
- b. mātrikanyā-le sanmāna gari buḥḍiyā-kana
 minister-daughter-agt. honor do-cp old-woman-dat.
basāyī bhaḷā kusāri garin (1825, V1)
 stay-cause-cp good greeting do-pp-3FH
 NB: gari--trans.; basāyī--trans.; garin--trans. & perf.
 'the minister's daughter greeted the old woman well, had her
 sit down, and treated her with respect'

For sentences like those in (36), there are two possible surface structure analyses; these are illustrated in (37) for intransitive main

and participial clauses like (36a), and in (38) for transitive main and participial clauses like (36b).⁹

- (37) a. ma khusi bhai pāṭan gaẽ
 I happy be-cp go-pp-1S
 'I went to Patan happily'
- b. [ma [Ø khusi bhai]_S pāṭan gaẽ]_S
 c. [[ma khusi bhai]_S Ø pāṭan gaẽ]_S
- (38) a. mai-le pasā gari ālo diẽ
 I-agt. gift do-cp field give-pp-1S
 'I presented the field as a gift'
- b. [mai-le [Ø pasā gari]_S ālo diẽ]_S
 c. [[mai-le pasā gari]_S Ø ālo diẽ]_S

In both these cases, since the main and dependent clauses have the same transitivity and the same tense, the surface structures are ambiguous.

The examples of conjunction reduction in OSN we've looked at so far have all resulted in the subject of the main verb controlling deletion and the subject of the participial clause being deleted, or else the roles of controller and victim were ambiguous because both clauses had either "nominative" or "ergative" underlying subjects.

We've also seen that there is no restriction in the application of conjunction reduction on the identity of the surface roles of the controller and victim (cf. 35), i.e., ergative agents may control and cause deletion of nonergative subjects, and vice versa. There are, of course, also no restrictions on the tense or transitivity of the main clause.

The conjunctive participial clause, however, will always be ergative, whatever the tense or transitivity of the main clause. When the main clause verb is nonperfective and/or intransitive, and the conjunctive participle is transitive, there would be a conflict between the surface case of the two subjects--a transitive agent in the conjunctive participial clause would be ergative, and the subject of the main clause would be nominative. A conflict would also occur when the participial clause was intransitive and the main clause was transitive and perfective.

Conjunction reduction would still apply in either of the above cases, and surface structures like those in (39), (40), and (41) could arise from the conjunction of the two clauses in (39a), (40a), and (41a), respectively.

- (39) a. mai-le pasā garẽ ra ma pāṭan gaẽ
 I-agt. gift do-pp-1S and I go-pp-1S
 'I made the gift and I went to Patan'

- b. ma pasā gari pāṭan gaẽ
 c. mai-le pasā gari pāṭan gaẽ
 'having made the gift, I went to Patan'
- (40) a. mai-le pasā garẽ ra ma ālo dinchu
 I-agt. gift do-pp-1S and I field give-prs.-be-1S
 'I made the gift and I shall give the field'
- b. ma pasā gari ālo dinchu
 c. mai-le pasā gari ālo dinchu
 'having made the gift, I shall present the field'
- (41) a. ma pāṭan gaẽ ra mai-le pasā garẽ
 I go-pp-1S and I-agt. gift do-pp-1S
 'I went to Patan and I made the gift'
- b. mai-le pāṭan gai pasā garẽ
 c. ma pāṭan gai pasā garẽ
 'having gone to Patan, I made the gift'

In these sentences, the main clause subject may control deletion of the participial clause subject (the 'b' sentences) and so appear in the surface structure. Such sentences are not particularly unusual, because the main clause subjects usually do control deletion. However, when the subject of the reduced participial clause controls deletion (the 'c' sentences), then the case of the surface subject conflicts with the expected case of the subject of the main verb. Thus, in (39c) and (40c), the expected case of the main verb would be nominative, and the surface subject is ergative; and in (41c), the expected case of the main verb subject is ergative, and the surface subject is nominative. (I shall temporarily ignore sentences like 41c in most of the following discussion.)

We have seen that sentences in which the participial clause subjects control deletion can occur in Modern Nepali; sentences in which the case of the surface subject and the expected case of the subject of the main verb conflict also are found in the OSN data. For example:

- (42) a. tas vāgh-le snān gari hāt-mā kuś likana
 that tiger-agt. bath do-cp hand-in grass take-cp
vaḍo talāu-kā tir-mā ubhi-rahyo (1776)
 big pool-gen.-O direction-in stand-remain-pp-3MS
 'having taken a bath, that tiger was standing near the big pool with grass in his hand'
- b. pheri baḍā parākramī rājā bikramasena-le tas-kana
 again great powerful king -agt. him-dat.
kādhā-mā rākhi calyā (1825, V11)
 shoulder-in place-cp move-pp-3MH

'after placing him on his shoulder again, the great and powerful King Bikramasena left'

- c. tāhi basi rahyākā coraharu-le basumatī-kā
 there stay-cp remain-pp-MP thief-pl.-agt. -gen.-O
jāra puruṣa-kana jhūdai mārī aphuharu
 adulterer man-dat. hang-impf.-emp. kill-cp oneself-pl.
bhāgī gayāchan (1825, V3)
 escape-cp go-pp-be-3MP

'the thieves who had remained behind had themselves fled after they killed Basumati's lover by hanging'

- (43) a. jñāni janā-le dhan-jiv ṣarccikana pani paropakār
 wise man-agt. wealth-life spend-cp also charity
garchan (1776)
 do-prs.-be-3MP

'having used up their lives and wealth, wise men do charity'

- b. tyo sunī bicāra gari mai-le chini diulā (1825, V3)
 that hear-cp thought do-cp I-agt. resolve-cp give-1S-fut.
 'having heard that and thought about it, I shall decide'

- c. tāhā pugyā pachi garuḍa-le bhākṣaṇa gari
 there arrive-pp after -agt. eating do-cp
rākḥnyā chaina (1825, V16)
 place-inf. be-neg.-3S

'after you have arrived there, Garuda will not keep you without eating you'

In (42), the main verbs, ubhirahyo, calyā, and gayāchan, are all intransitive, but the surface subjects, vāgh-le, bikramasena-le, and coraharu-le, respectively, are all marked as ergative; and each sentence has at least one dependent, participial clause which is transitive and so would have its underlying subject marked as ergative. In (43), the main verbs are all transitive and nonperfective, and for these, too, we would expect nominative subjects; yet, in each sentence, there is a conjunctive participial phrase the ergative NP of which has apparently controlled deletion of the main clause subject. So, in (42) and (43), the main clause nominative subject has been deleted.

Sentences in which the ergative NP of the main clause is deleted through identity with a nominative conjunctive participle subject also occur:

- (44) kṣātīśīla prasanna bhai rājā-ko bahutai stuti garyo (1825, V25)
 pleased be-cp king-gen.-MS much-emp. praise do-pp-3MS

'pleased, Kshamtishila praised the king greatly'

In (44), the apparent surface realization of the underlying subject of the transitive, perfective verb garyo is kṣātīśīla, a nominative NP and subject of bhai, an intransitive conjunctive participle.

All these OSN examples involve a conflict between the case of the surface subject and the expected case of the subject of the main verb, rather than the structure of the sentences being ambiguous because the surface subject would be appropriate as the subject of either the dependent or main clause. As we have seen, the only restriction on the application of conjunction reduction is that the underlying subjects of the verbs be identical. However, in the OSN data sentences in which the main clause subject controls conjunction reduction occur much more frequently than those in which the conjunctive participle subject controls deletion. Given that there are examples in which the surface subject is ambiguously either the main clause or participial clause subject, and the fact that the surface subject is generally the main clause subject, sentences like those in (42) and (43) could be misanalyzed as having surface structures in which the surface subjects are understood as being the subjects of the main clauses; thus, they could also be "ambiguous" and have two possible analyses like those sentences in (36), cf. (37) and (38). Thus:

- (45) a. mai-le pasā gari pāṭan gaē
'having made the gift, I went to Patan'
b. [[mai-le pasā gari]_S ∅ pāṭan gaē]_S
c. [mai-le [∅ pasā gari]_S pāṭan gaē]_S
- (46) a. mai-le pasā gari ālo dinchu
'having made the gift, I shall give the field'
b. [[mai-le pasā gari]_S ∅ ālo dinchu]_S
c. [mai-le [∅ pasā gari]_S ālo dinchu]_S

The sentences in (42) and (43) could be reanalyzed as having *le*-marked subjects in both clauses, or as having a *le*-marked NP as the underlying subject of the main clause, which controls conjunction reduction and appears on the surface. Analyses such as those in (45c) and (46c) would be more consonant with the predominant sentence structure in which the surface subject is the main clause subject.

Once *le*-marked NPs are reanalyzed as subjects of intransitive or non-perfective transitive verbs in these constructions with conjunctive participial clauses, then by analogy they could appear as subjects of nonperfective and/or intransitive verbs in sentences without participial clauses. Consider the solutions to the four-part analogies below:

- (47) mai-le pasā gari ālo diē : mai-le ālo die ::
mai-le pasā gari ālo dinchu : mai-le ālo dinchu
or
mai-le pasā gari pātan gaẽ : mai-le pātan gae

Surface subjects of sentences with conjunctive participles are generally the subjects of the main verb, and so ambiguous sentences produced by the operation of conjunction reduction may be resolved in that direction, with misanalyses of surface structures like the solutions above resulting. The solutions to the analogy equations are sentences with nonhistorical ergative subjects. This provides an explanation for the occurrence of such subjects in Nepali and not, for example, in Hindi-Urdu; in the latter language, conjunction reduction operates in sentences with the kar construction, but it is always the subject of the dependent clause that is deleted, e.g.:

- (48) rām-ne khānā khā kar kitāb paṛhī
-agt. food eat- cp book-FS read-pp-FS

'after he ate, Ram read a book'

- (49) *rām-ne khānā khā kar dillī gayā
-agt. food eat-cp Delhi go-pp-MS

'after he ate, Ram went to Delhi'

In Hindi-Urdu, the opportunity for misanalysis of such constructions would not arise, because only one of the two subjects can control deletion, and so there would be no ambiguity.

So, one factor that may be contributing to the spread of le-marked NPs in historically nominative environments is the conjunctive participial clause which is formed from the perfective participle and thus is ergative. Through conjunction reduction the ergative agents of these conjunctive participles may appear to be the surface subjects of nonperfective and/or intransitive verbs, thus, allowing speakers to analyze a le-marked ergative subject as being appropriate in a nominative context.

Whatever trend there is in Nepali to neutralize the le/Ø distinction in marking subjects, it appears to be toward the mai-le ālo dīnchu and mai-le pātan gāē types rather than toward the ma ālo dīē solution, arising from sentences like those in (44), which we have ignored up to now. That is, rather than falling out of use, the postposition le has been increasing the number of environments in which it is allowed (cf. Abadie 1974; Kachru & Pandharipande 1979). One reason why this solution may be favored is the second factor mentioned above--Nepali is spoken in contact with languages that do use an ergative marker for all transitive agents.

6.3.2. The Tibetan languages bordering on the Indo-Aryan regions of India and Nepal have ergative morphology in most tenses (cf. Bauman 1979); and the Indo-Aryan languages of the Himalayan region do show a tendency to expand the use of the ergative case.

For example, Newari, a Tibetan language, marks transitive agents in all tenses:

- (50) a. ji paradeśan vayā 'I come from a foreign country'
I-nom. foreign country-ins. come-prs.

- b. amo dhu jin mocake dhuno 'I killed this tiger'
this tiger-nom. I-agt. destroy finish-pst.

- (51) a. thva bikramādit rājā thava rāṇy vanam
 this king-nom. self kingdom come-pst.

'King Bikramaditya went to his own kingdom'

- b. thathe rājā-syam ājñā biyāva
 when king-agt. order-nom. give-prs.

'when the king gives an order'

(Source: Jørgensen 1941)

Among the IA languages the use of an agent-marker can be found throughout the Himalayan region without regard to tense. Even in Sanskrit chronicles written in the Newari-speaking Nepal Valley kingdoms, we find that the instrumental case is used for subjects of active transitive verbs, where the nominative case would be correct (Petech 1958: 117):

- (52) a. rājā śrī vijayadeva varṣa 31 tena lalitāpurī
 king year he-ins.

arddha rājyaṃ karoti
 half reign-acc. do-prs.-3S

'King Shri Vijayadeva ruled half the kingdom of Lalitapuri for 31 years'

- b. rājā śrī balavantadeva varṣa 12 tena atyantasubhikaṃ
 king year he-ins. very-lucky

rājyaṃ karoti / tena ca haripura kṛtaṃ
 reign-acc. do-prs.-3S he-ins. and do-pp-NS

'King Shri Balavantadeva ruled Haripur and reigned benevolently for 12 years'

(Source: Petech 1958: 220)

And in Shina, an Indo-Aryan language of Northwest India also bordering on the Tibetan region, we find the Nepali situation carried one step further--the agents of all transitive verbs, no matter what tense, appear in the ergative case.

- (53) a. ash ma bodi dūre zho peādal vatus
 today I-nom. very far from walking come-pst.-1S

'today I walked here from far away'

- b. mas ēsai puṇe bodu ṣidēgas
 I-agt. that-gen. son-acc. much beat-pst.-1S

'I beat his son badly'

- c. anise kāryo mas ānisei āshpi fātake-ṭ haremus
 this for I-agt. this-gen. horse-pl. pound-to take-prs.-1S

'I am taking his horses to the pound for him'

d. āly-o sāb bahādur-se tu-ṭ rāfali ga
 there-from -agt. you-dat. rifles and
kartūshe dei
 cartridges give-fut.-3S

'Sahab Bahadur will give you the rifles and cartridges from there'

(Source: Bailey 1924)

The use and distribution of le in Nepali could thus be influenced by Tibetan languages with which Nepali-speakers are in contact. The fact that contact languages have ergative markers has apparently affected the IA languages of the region so that they, too, use an ergative postposition to mark all transitive agents. However, this language contact evidence alone cannot explain why the ergative marker le is spreading to intransitive subjects as well, as we saw in the previous section. While contact with Tibetan languages may not be the source of the use and distribution of le in Nepali, such contact may have reinforced its use, so that a choice between a marked or an unmarked subject in nonperfective and/or intransitive environments would be resolved in favor of the marked NP.

6.4. In this section, we have seen that during the 16th century the Nepali postposition le was introduced into those environments which were historically ergative in MIA. And, at this point, its distribution was probably similar to that of ergative postpositions in other Indian languages. We saw examples from the 18th and 19th centuries which indicated that the use of le was spreading to nonperfective transitive agents and also some intransitive subjects. It was then shown that syntactically such nonhistorical uses could arise through the reanalysis of ergative agents of conjunctive participial clauses as the le-marked subjects of nonperfective and/or intransitive verbs in main clauses. We also discussed that the conditions for the expansion in use of le were present because of the close contact between Nepali speakers and speakers of ergative Tibetan languages. While language contact can explain the spread of le as an ergative marker in all tenses, the syntactic analysis of the interaction of conjunctive participles with main clauses offers an explanation for the neutralization of subject/agent distinctions in favor of le-marked NPs, for which there is some evidence in the language.

7. The Nepali Perfective Participle.

7.1. The perfective participle of the Indo-Aryan languages is the reflex of the Sanskrit ta-participle, and unless restructured, the perfective participle has ergative syntax. Using the term ergative to describe a participle means that its head or modified noun is either its subject if intransitive or direct object if transitive. The head noun would, of course, appear in its surface structure role in the main sentence, and the agent of a transitive participle would appear in the ergative/instrumental case. The participle itself could agree in number and gender with its head noun. This ergativity would apply whether the participle were used as an attributive participle or as a main verb perhaps in conjunction with an auxiliary. A

participle with nominative syntax would, on the other hand, have as its head noun either the underlying subject or agent of an intransitive or transitive verb, respectively, and the direct object of such a participle would appear in the accusative/objective case.

7.2. The IA perfective participle in Nepali is found in four constructions which will be important to the following discussions of its use and development as a finite verb. First, a set of personal endings may be added to the perfective participle to form the perfective past or simple past tense, as in (54):

- (54) a. ma nepāl-mā base 'I lived in Nepal'
I -in stay-pp-1S
- b. hāmi-le us-lāi ciṭhi paṭhāyāũ 'we sent him a letter'
we-agt. him-dat. letter send-pp-1P

Second, the perfective participle appears in conjunction with the auxiliary verb as a compound verb; for example, the Modern Nepali eko-participle plus the auxiliary cha is used for the present perfect tense:

- (55) a. ma nepāl-mā baseko chu 'I have lived in Nepal'
I -in stay-pp-MS be-1S
- b. hāmi-le bhāt khāekā chāũ 'we have eaten dinner'
we-agt. meal eat-pp-MP be-1P

Third, the perfective participle is used as the main verb of a dependent conditional clause, as the e-participle in Modern Nepali:

- (56) a. rām gae śyām jāncha 'if Ram goes, Shyam will go'
go-pp go-prs.-be-3MS
- b. timi-le okhati na khāe marne chau
you-agt. medicine not eat-pp die-inf. be-2MP
'if you don't take the medicine, you will die'

Finally, the perfective participle may be used attributively:

- (57) a. hijo āeko mānche āj calyo
yesterday come-pp-MS man today move-pp-3MS
'the man who came yesterday left today'
- b. buwā-le lekheko ciṭhi kahā cha
dad-agt. write-pp-MS letter where be-3MS
'where is the letter dad wrote?'

In the following discussions, I shall refer to these four functions as the perfective past, compound perfect, conditional, and attributive uses, respectively, for all periods of the language.

We should note that there is a natural split in these uses of the

perfective participle between the perfective past and the other three. In the perfective past, the form of the participle is modified by the addition of personal suffixes, so the participle is treated as a verb stem, whereas the form of the participle in other contexts remains constant except for gender and number agreement, like an adjective, or the form of the participle never changes as in the conditional use. The history of the perfective past is also somewhat distinct from the histories of the other three uses of the participle, and so I shall first discuss the Nepali perfective past in section 8, and then turn to the history of the compound perfective tenses and other constructions in section 9.

8. The Nepali Perfective Past Tense.

8.1.1. The perfective or simple past tense in Nepali is formed by adding personal suffixes agreeing with the underlying subject to the perfective participle stem. The transitive agent is marked with *le*, so the syntax of the simple past is agentive. This is true of Modern Nepali (58) and (59), as well as Old Shah Nepali (60) and (61).

- (58) a. ma nepāl-mā basē 'I lived in Nepal'
I -in stay-pp-1S
- b. timi nepāl-mā basyau 'you lived in Nepal'
you-MP -in stay-pp-2MH
- c. rām nepāl-mā basyo 'Ram lived in Nepal'
-in stay-pp-3MS
- d. sitā nepāl-mā basi 'Sita lived in Nepal'
-in stay-pp-3FS
- (59) a. mai-le kitāp paṛē 'I read the book'
I-agt. book read-pp-1S
- b. timi-le kitāp paryau 'you read the book'
you-MP-agt. book read-pp-2MH
- c. rām-le kitāp paryo 'Ram read the book'
-agt. book read-pp-3MS
- d. sitā-le kitāp paṛi 'Sita read the book'
-agt. book read-pp-3FS
- (60) a. inu-līi gāta jāgyo (1751)
these-dat. favor-MS rise-pp-3MS
'these have been paid'
- b. 55 rupiyā ālā 800 rupiyā 15 koḍā kapaḍā
-P each-MP -P cloth
oḍā-tir lāgyā (1751)
brick-toward attach-pp-3MP
'the bricklayers received 55 rupees each, 800 rupees in all
and 15 kors of cloth'

- c. hāmṛā kaji-kā sneha-le vahutai banyo (1757)
 our -gen.-O love-ins. much-emp. be made-pp-3MS
 'much has occurred through the devotion of our kaji'
- d. ma thāmiñā 'I was satisfied' (1766)
 I halt-pp-1MS
- e. aru sardār-bhandā timi mukhya bhayau (1770)
 other -than you-MP chief be-pp-2MH
 'you became more important than the other sardars'
- (61) a. kai-le pāso solo ṣelyo bhanyā (1591)
 someone-agt. dice play-pp-3MS if
 'if anyone gambles'
- b. samasta karma jas-le garyo (1670)
 all duty who-agt. do-pp-3MS
 'whoever did all the duties'
- c. śri rāghau josi-le śri viśveśvara sthāpanā garyā (1712)
 -agt. enshrinement do-pp-3MH
 'Shri Raghau Joisi established this shrine for Shiva'
- d. bhoṭyā-sāga mai-le yati bolyā (1766)
 Tibetan-with I-agt. thus speak-pp-1S
 'I said this to the Tibetans'
- e. vāki bhāju-deu ṭaudika nevar-kā dui hajār
 rest -gen.-MP two thousand
mahādrāmali vāpat māpha gari vaksyāu (1766)
 mohor transaction pardon do-cp give-pp-1P
 'of the rest we have approved two thousand mohors for the
 Newar Bhaju Dev Taudik'
- f. tati gharyādi-samet hāmi-le vaksyāu (1767)
 thus house-etc.-with we-agt. give-pp-1P
 'we have given thus for the house and other things'

We can see in these examples that the same personal suffixes are used for intransitive (58) and (60) and transitive (59) and (61) verbs.

8.1.2. The perfective participle stems and the personal suffixes used in Nepali may be broken down as in Table 2, at the top of the next page. The data that clearly present the nonthird person personal endings are mostly from the 18th century onward, and it may be that by this time the perfective stem and the personal suffixes are treated as a single morphological unit.

There is some evidence, however, that the personal suffixes are

<u>Person</u>	<u>Singular</u>	<u>Plural</u>
1	ya + m̐	yā + ũ
2	i + s	yā + u
3M	yo + Ø	yā + Ø
3F	i + Ø	i + n

Nepali Perfective Past Personal Suffixes

Table 2

independent of the stem even at this time, because, as in the verb forms in (62) and (63), the suffixes remain constant no matter what form the stem takes.

- (62) a. aru sardār-bhandā timi mukhya bhaya-u (1770)
 other -than you-MP chief be-pp-2MH
 'you became more important than the other sardars'
- b. tara alika dhilo gare-u / caḍo garnyā kām ho (1766)
 but somewhat slow do-pp-2MH fast do-inf. work be-3MS
 'you have worked somewhat slowly; the work must be done faster'
- (63) a. vidhivistār sunya-ũ (1774)
 decree-detail hear-pp-1P
 'we have heard the contents of the decree'
- b. bhanyāko suni-ũ (1766)
 say-pp-MS hear-pp-1P
 'we have heard what was said'
- c. ra uhi sayat-mā mahāmaṇḍala-mā ukle-ũ? (1775)
 and that time-in great-circle-in ascend-pp-1P
 'and did we enter the alliance at that time?'

I shall assume that in OSN or at some earlier time the personal suffixes were separable, and thus, that they are additions to the perfective participle. The Modern Nepali personal endings have arisen from the fusion of a form of the perfective stem plus these personal suffixes.

8.2. In the formation of the simple past, Nepali disagrees with most other Western Indian languages. In Hindi-Urdu, for example, the perfective participle used as a past tense is ergative, and it retains the adjectival characteristic of only showing agreement in gender and number:

- (64) a. mai calā 'I left'
 I-MS go-pp-MS
- b. tum cale 'you left'
 you-MP go-pp-MP

- c. $\frac{\text{rām}}{-\text{MS}} \quad \frac{\text{calā}}{\text{go-pp-MS}}$ 'Ram left'
- d. $\frac{\text{sītā}}{-\text{FS}} \quad \frac{\text{calī}}{\text{go-pp-FS}}$ 'Sita left'
- (65) a. $\frac{\text{māī-ne}}{\text{I-agt.}} \quad \frac{\text{kitāb}}{\text{book-FS}} \quad \frac{\text{parhī}}{\text{read-pp-FS}}$ 'I read a book'
- b. $\frac{\text{tum-ne}}{\text{you-agt.}} \quad \frac{\text{kitāb}}{\text{book-FS}} \quad \frac{\text{parhī}}{\text{read-pp-FS}}$ 'you read a book'
- c. $\frac{\text{rām-ne}}{-\text{agt.}} \quad \frac{\text{khānā}}{\text{food-MS}} \quad \frac{\text{khāyā}}{\text{eat-pp-MS}}$ 'Ram ate'
- d. $\frac{\text{sītā-ne}}{-\text{agt.}} \quad \frac{\text{khānā}}{\text{food-MS}} \quad \frac{\text{khāyā}}{\text{eat-pp-MS}}$ 'Sita ate'

8.3. Nepali, however, is not the only IA language to have developed non-ergative agreement in the perfective past; and there are languages which, in some respects, combine ergative verbal patterns with subject/agent agreement. Since all these languages have evolved from MIA languages with basically the same characteristics in this tense, all the nonergative languages have evolved from earlier ergative stages. In order to see how the syntax of Nepali may have evolved from an ergative stage to its current agentive stage, it will be useful to examine briefly other forms of non-ergative systems in the IA languages. (More complete discussions may be found in Hock 1981 and Stump To Appear.)

8.3.1. The Northwestern Indian languages--Sindhi, Lahnda, and Kashmiri--have retained the Old Indo-Aryan enclitic pronouns and use them as pronominal suffixes on both nouns and verbs. Sindhi has three sets of these suffixes for nominative, agentive, and other oblique agreement; Lahnda has two--one nominative, one any case; and Kashmiri has two, one nominative and one oblique (Grierson 1919).

These suffixes may be added to the perfective participle when used as a main verb. The perfective participle itself, like that in Hindi, agrees with the ergative subject, i.e. an intransitive subject or transitive direct object. The pronominal affixes may be used to mark the ergative subject as in Lahnda:

- (66) a. $\frac{\text{jāteu-m}}{\text{know-pp-MS-1S nom.}}$ 'I knew'
- b. $\frac{\text{us}}{\text{he-agt.}} \quad \frac{\text{mārea-m}}{\text{beat-pp-MS-1S nom.}}$ 'he beat me'

(Source: Grierson 1919, i: 270)

And they may be used to mark the transitive agent, as in the Lahnda examples in (67).

- (67) a. us-nũ mārea-m 'I beat him'
 he-obj. beat-pp-MS-1S agt.
- b. gā dītṭhī-m 'I saw the cow'
 cow-FS see-pp-FS-1S agt.
- c. kis-nũ mareā-i 'whom did you beat?'
 who-obj. beat-pp-MS-2S agt.
- d. mā-nũ māreā-s 'he beat me'
 I-obj. beat-pp-MS-3S agt.

(Source: Grierson 1919, i: 270)

The perfective past here is still ergative in that the ergative subject still controls agreement in gender and number with the participle; and different suffixes may be used in marking intransitive and transitive subjects, as in Sindhi:

- (68) a. iḥā rāte mōrē tikiu-se 'this night I stayed in Moro'
 this night moro-in stay-pp-MS-1S nom.
- b. una-khā pucchiu-me 'I asked him'
 him-dat. ask-pp-MS-1S agt.

(Source: Grierson 1919, i: 71, 91)

The pronominal affixes are optional in Sindhi and Lahnda; however, in Kashmiri the nominative agreement suffixes with intransitive verbs are obligatory (Grierson 1919, ii: 291), and the second person suffixes indicating transitive agents are also obligatory (312).

These pronominal affixes represent a modification of the basic IA ergative agreement found in Hindi, because the underlying subject may be marked on the perfective participle used as a main verb. As in Lahnda, underlying intransitive and transitive subjects may be marked alike (cf. 66a, 67a,b), neutralizing the syntactic distinction between subject and agent. Further, the obligatory use of suffixes on intransitive verbs introduces person and number agreement for the participle in Kashmiri, like that used for other finite verbs; and the obligatory use of the second person agentive suffixes introduces agent-verb agreement into an otherwise ergative system.

8.3.2. Marathi has also developed pronominal suffixes for the perfective participle, although their connection with those of the Northwestern languages is uncertain. In Old Marathi, these were ergative in agreement (Hock 1981; Master 1964: 130-132), but in Modern Marathi, they agree with the underlying subject. In Standard Marathi, pronominal affixes may optionally be added to the ergative participle in the second persons (Kachru & Pandhari-pande 1979: 199):

- (69) a. mī kame kelī 'I did the jobs'
 I job-NP do-pp-NP

- b. $\frac{t\bar{u} \quad kame \quad kel\bar{T}(s)}{\text{you-S} \quad \text{job-NP} \quad \text{do-pp-NP}(-2S)} \quad \text{'you did the jobs'}$
- c. $\frac{tumh\bar{T} \quad kame \quad kel\bar{T}(t)}{\text{you-P} \quad \text{job-NP} \quad \text{do-pp-NP}(-2P)} \quad \text{'you-all did the jobs'}$

In the Konkani dialects, the use of the pronominal suffixes on the perfective participle is more extensive, and in some cases, obligatory (Grierson 1905: 163ff.).¹⁰ For example, in Chitpavani (Grierson 1905: 210-216), -s is used to mark second person singular agents, -t second person plural agents, and -n third person singular agents.

- (70) a. $\frac{t\bar{u} \quad t\bar{e}-ch\bar{e}-s\bar{a}th\bar{T} \quad \bar{e}k \quad m\bar{e}jv\bar{a}n\bar{T} \quad dil\bar{T}s}{\text{you-agt.} \quad \text{him-of-for} \quad \text{one} \quad \text{feast-FS} \quad \text{give-pp-FS-2S}} \quad \text{'you prepared a feast for him'}$
- b. $\frac{t\bar{e}-ch\bar{e} \quad b\bar{a}p\bar{a}n \quad t\bar{e}-l\bar{a} \quad baghitl\bar{a}n \quad \dots \quad t\bar{e}-ch\bar{e} \quad gal\bar{e}-l\bar{a}}{\text{him-of} \quad \text{father-agt.} \quad \text{him-dat.} \quad \text{see-pp-NS-3S} \quad \text{him-of} \quad \text{neck-dat.}}$
 $\frac{m\bar{i}th\bar{T} \quad m\bar{a}rl\bar{T}n \quad \bar{a}n\bar{i} \quad t\bar{e}-ts\bar{o} \quad muk\bar{o} \quad gh\bar{e}tl\bar{o}n}{\text{embracing-FS} \quad \text{strike-pp-FS-3S} \quad \text{and} \quad \text{him-of} \quad \text{kiss-MS} \quad \text{take-pp-MS-3S}}$
 'his father saw him, and then embraced and kissed him'

As we can see in (69) and (70), the ergative agreement pattern is retained, as the participle agrees in gender and number with the direct object; but in Konkani, agent-verb agreement has been introduced as well, for the agent suffixes are usually present.

One factor influencing the spread of pronominal suffixes in Marathi is the development of a set of personal endings for intransitive perfective participles, probably through borrowing the nonthird person endings of the present tense, and adding them to the perfective participle. Thus, we find gelō 'I(M) went', gelo 'he went', gelos 'you(M) went', etc., unlike in Hindi in which gayā would be used for all three of the preceding persons.

In addition, there has been a leveling of the distinction between nominative and agentive pronouns in Marathi (Hock 1981; Master 1964: 85), so forms like tū represent nominative and agentive cases. Bloch (1914: 262-264) states that the use of nominative pronouns and underlying subject-verb agreement patterns with the perfective participle is found with a certain class of verbs, effectively creating a nominative, active paradigm.

While Standard Marathi still has ergative syntax in the perfective past, several modifications have occurred in the standard language and various dialects. The use of pronominal suffixes produces partial verb agreement with the transitive agent, while intransitive participles agree in gender, number, and person with their subjects. The nondistinctness of nominative and agentive pronoun forms may contribute to analogical verb agreement with the agent.

8.3.3. The past tense in Shina is formed by adding personal suffixes to the past stem, which agree with the underlying subjects, and there is no agreement between the direct object and perfective participle. For example:

- (71) a. resai mālu-s darú gē rese-ṭ nasiat thēgu
 his father-agt. out go-cp him-dat. advice make-pst.-3S agt.
 'his father went out and talked to him'
- b. anu tus kēse jo gāç ginīga
 this you-agt. whom from price take-pst.-2S agt.
 'from whom did you buy this?'

(Source: Bailey 1924)

While both intransitive and transitive verbs use personal endings, there are different endings for singular subjects and singular agents of the same person:

- (72) a. ash ma bodi dūre zho peādal vatus
 today I very far from walking come-pst.-1S nom.
 'today I walked here from far away'
- b. mas khūdā ga thai hake-r gunā thēgas
 I-agt. God and your right-in sin make-pst.-1S agt.
 'I have sinned before you and God'

The personal endings are the same for plural subjects and agents of the same person.

The subjects of intransitive verbs appear in the nominative, unmarked case, while the agents of transitive verbs are marked with -s or -se. And as mentioned in an earlier discussion, all transitive verbs--whether perfective or not--have subjects marked with the agent marker.

Assuming that the past tense in Shina reflects an earlier ergative system, like that found in other IA languages, it has made significant changes in this tense. Personal affixes agreeing with the underlying subject have developed for both intransitive and transitive verbs, and these have replaced any former agreement between the direct object of transitive verbs and a perfective verb stem. The intransitive and transitive verbal suffixes are distinct in the singular persons, but they have been neutralized in the plural. The ergative marker has been extended to all transitive agents, so the past tense is not the only tense in which there is a difference in marking between subjects and agents.

8.3.4. The Eastern Indian languages have established nominative agreement in the perfective past, completely replacing the old ergative system. For example, in Bengali:

- (73) a. tumi tar janya bara bhoj dile
 you-nom. him for big feast give-pp-2S
 'you gave a big feast for him'

- b. tāte se tār bishay tādigē bhāg-kare dila
 hereon he-nom. his property to them sharing give-pp-3S
 'so he divided his property between them'

(Source: Grierson 1903, i: 67-68)

Pronominal affixes also developed in the Eastern languages, which, although they may not have had the same source as those in the Northwestern languages (Grierson 1895, 1896; Chatterji 1926: 973), developed in the same way, as affixes on the ergative perfective participle (Chatterji 1926: 973-987). So the suffixes agreeing with the underlying subject simply replaced whatever agreement patterns there were. In some early forms of the Eastern languages, there were some distinctions between the suffixes used for transitive and intransitive subject agreement, but these have generally merged in the modern languages.

The distinction between nominative and agentive cases was lost also in the Eastern languages in both pronouns and nouns, so the patterns of agreement between subject and verb in the perfective past are nominative, with both transitive and intransitive verbs agreeing in person and number with the subject/agent. Thus, the syntax of the simple past in the Eastern languages has been completely changed from ergative to nominative both in subject marking and verb agreement.

8.4. If we now compare the perfective tense paradigms of all these languages, we can find further similarities:

Intransitive

Subj.	Hindi	Lahnda	Marathi	Nepali	Shina	Bengali
1S	caṛā	caliam	callō	calyā	vatus	calilum
2S	calā	caliā	callos	calis	vato	calile
3S	calā	caliā	callo	calyo	vatu	calile
1P	cale	caliose	callō	calyāu	vates	calilām
2P	cale	caliohe	callā	calyau	vatet	calile
3P	cale	cale	calle	calyā	vate	calilen
	'went'	'went'	'went'	'went'	'came'	'went'

Transitive

Subj.	Hindi	Lahnda	Marathi	Nepali	Shina	Bengali
1S	mārā	māream	(mārlo)	māryā	zamegas	mārilum
2S	mārā	māreāi	mārlos	māris	zamega	māriile
3S	mārā	māreās	mārloṇ	māryo	zamegu	mārila
1P	mārā	māreāhse	(mārlo)	māryāu	zamegyes	mārilaṁ
2P	mārā	māreāne	mārloṭ	māryau	zamegyet	māriile
3P	mārā	māreāne	(mārle)	māryā	zamegye	mārilen
	'struck'	'struck'	'struck'	'struck'	'struck'	'struck'

Comparison of Perfective Past Pronominal Affixes

*Not necessarily in use in all dialects; forms in () may not be used in dialects using unmarked forms.

Table 3

In this distribution of forms, we can see a general pattern of development in all the languages except for Hindi: nonthird person contexts are those most susceptible to modification. The adjectival base forms of the third person singular and plural--intransitive and transitive--have been retained, for the most part, in Marathi, Nepali, Shina, and Bengali, despite the restructuring that may have taken place in other persons. Nepali yo/yā were once used to agree with an ergative subject, i.e., the intransitive subject or transitive direct object, and now they are used to agree with the third person underlying subject, i.e., intransitive subject and transitive agent.

There are, of course, various similarities in form between the Nepali personal affixes and those of the other languages, e.g., nasalization in the first singular agentive suffix in Nepali, Lahnda, Marathi, and Bengali. Perhaps the closest match of these languages presented is between Nepali and Marathi--both show -s in the second person singular, both have nasalization in the first persons, etc. There are no apparent geographical or political explanations for this similarity, so contact, except prior to any migrations from the Central Hindi area, does not seem to be a satisfactory explanation. It has been suggested (cf. Grierson 1895, 1896; Stump To Appear) that both Marathi and Nepali extended personal suffixes from the OIA radical present tense to the perfective participle. This explanation raises some problems for Nepali, because the verb system in the language has undergone a complete restructuring, so most tenses are periphrastic in origin, and the remnant of the OIA present, now the injunctive, does not have similar personal endings. We do find similar personal endings in use for the present of the auxiliary verbs cha (chu, chas, cha, chāu, chau, chan) and ho (hū, hos, ho, hāu, hau, hun), and there is no evidence to suggest that an older borrowing could not have taken place. In fact, there is really no evidence to indicate definitely one way or another what the origin of the Nepali personal suffixes is.

Given the issues that must be raised and the evidence that must be presented for such a discussion, the origins of the Nepali personal suffixes of the perfective past and their relation to those of the other languages cannot be dealt with adequately in this study. I shall continue to use the generic term pronominal affix to refer to all the cases looked at in this section.

Whether the origin of these pronominal suffixes is in the OIA enclitic pronouns, or new MIA pronouns (as Chatterji 1926 suggests for the Eastern Indian languages), or endings borrowed from the OIA radical present is not as crucial as the fact that we see the same syntactic pattern recurring in all the languages, that is, the pronominal affixes are suffixed to the ergative perfective participle, and from this beginning, modifications may develop. Let us then assume that the syntactic origins of the pronominal affixes in these languages are similar, and discuss the mechanisms by which the ergativity of the perfective past is lost or weakened.

8.5. By comparing the development of pronominal affixes in these languages, we can see that there are certain steps that some IA languages have gone through in order to modify the OIA ergative system in the perfective past. These include:

1. development of pronominal affixes on the participle (of some uncertain type and origin)

2. use of pronominal affixes agreeing with the intransitive subject (S) and transitive agent (A)
3. neutralization of distinctions between affixes for S and A
4. obligatory use of pronominal affixes for S and A agreement, perhaps partial at first, but which essentially establishes a personal agreement paradigm for S
5. neutralization of morphological distinctions between the subject NP and agent NP
6. neutralization of syntactic distinction between subject NP and agent NP (i.e., the distinction that while S may agree with the perfective verb, at best A only partially agrees with the perfective verb)
7. replacement of DO-verb agreement with A-verb agreement for transitive verbs, thus establishing a personal agreement paradigm for A

These are not intended to be discrete nor strictly chronological, and the list excludes other factors which may have intruded in the cases discussed here, for example, development of an ergative postposition separate from agentive inflection, or extension of a direct object postposition which developed in all IA languages and could block verb agreement with the perfective participle, or influence from neighboring languages such as Tibetan on China and Eastern Indian on Marathi dialects.

All these properties are attested in various stages of the languages we have looked at in this section, although not all the languages participate in them all. The Eastern Indian languages have mostly gone through all seven steps, although not all morphological distinctions between S and A have been neutralized in all those languages. Shina has also acquired most, but it has only partially neutralized the morphological distinction between S and A in the perfective by extending the ergative marker to all agents. Nepali has developed along similar lines, but has also not resolved the S vs. A morphological distinction, although there is at least some evidence that points to le spreading to all transitive agents and some intransitive subjects. Sindhi and Lahnda participate in 1-3; Kashmiri 1-4; while Marathi at least partially 1-5, and in some dialects 1-6.

This comparison of the IA languages that modify the ergative perfective past (assuming Hindi represents the basic system inherited from MIA) has provided us with some information about the steps Nepali may have gone through to develop its agentive syntax. However, the acquisition of these non-ergative properties does not explain how the critical step is taken, i.e., how agent-verb agreement replaces DO-verb agreement for transitive verbs.

8.6.1. The question then remains: what role did these factors play in the loss of ergativity in the Nepali perfective past? Obviously, ergative syntax is not inherently unstable, because Hindi and other Western Indian languages have retained the ergativity of the perfective past. Also, the introduction of pronominal affixes alone is not sufficient to weaken an ergative system, cf. Sindhi, Lahnda, etc.

As Hock 1981 and Stump To Appear suggest, it must be a combination of factors that result in the elimination or weakening of ergative syntax in the IA perfective tenses. In each language, there are probably certain developments which have combined to allow more of these properties to be acquired. And the interaction of developments independent of verb morphology or underlying subject marking and the acquisition of more of these properties may result in the weakening of ergative syntax.

In Nepali, we might consider the development of these properties in conjunction with (1) the drastic reduction in the IA grammatical gender system, and (2) the introduction of an animate object postposition. The former seems to be a Nepali-specific development, as many IA languages have retained grammatical gender; and the latter is a general development in the Indian languages. But both are independent of change in the perfective past.

8.6.2. Nepali now has a two gender system: all female animate beings are considered *feminine*, and all other nouns are considered *masculine*. Complete development of this system appears to have occurred in the modern IA period, as traces of grammatical gender in nouns can be found in OMN and OSN data. This reduction in grammatical gender would sharply curtail the frequency with which adjectives, in general, and participles, in particular, would morphologically differentiate the noun to which they refer in any given sentence. While some Indian languages may distinguish among masculine, feminine, and neuter nouns by morphological marking on adjectives and participles, Nepali can only distinguish between masculine and feminine, and the latter represents only a very small class of nouns compared with the former. So, during the development of Nepali, the possibility that any two given nouns will be distinguished by the agreement markers on the adjectives or participles that refer to them has been reduced.

Most Indian languages have developed a postposition used to mark dative/accusative animate objects obligatorily, and other definite objects optionally. In Nepali, this postposition is currently *lai*, but several different postpositions were used throughout the older periods (cf. Wallace 1981). The appearance of this postposition with a direct object in a sentence with a perfective verb blocks verb agreement with that direct object, as in the Hindi-Urdu examples (4d,f) in which *ko* blocks agreement of the perfective participle with the direct object of the sentence. When ergative verb agreement is so blocked, the verb appears in the neutral form, usually the masculine singular.

As a result of these two developments, most feminine nouns in Nepali when used as direct objects would be marked with *lai*; and most unmarked direct objects would be masculine. A transitive perfective participle used as a main verb would thus hardly ever make gender distinctions, if ergative syntax were employed. Most feminine nouns with which it could agree would be marked with *lai*, and so agreement would be blocked. Thus, whether the noun were feminine or masculine, the morphology of a transitive perfective participle would be masculine. Actually, the most common form of the perfective participle during the OSN period is the verb stem plus *ya*, the masculine oblique or plural form.

Given that Nepali developed a simplified gender system, an obligatory postposition to mark animate direct objects, and pronominal affixes agreeing with the underlying subject/agent for the perfective participle when used as a main verb, we would expect forms like those in (74) to occur:

- (74) a. *(mai-le) bakhro māryā-ṇ 'I struck the goat'
 I-agt. goat-MS strike-pp-MS-1S
- b. *(tā-le) kitāp dekhyā-s 'you saw the book'
 you-agt. book-MS see-pp-MS-2S
- c. *(hāmi-le) chori-lāi rākhyā-ū 'we kept the girl'
 we-agt. girl-FS-dat. keep-pp-MS-1P

In such sentences, the only analyzable distinction made by the verb is that the pronominal affixes vary according to the person of the agent; the gender and number of the direct object is of minimal importance even though the syntax of the sentence with the perfective participle is ergative. Thus, the fact that the perfective participle is ergative is not very salient on the surface. Since verbs in other tenses are distinguished according to the person of the subject/agent, such forms might suggest that it is the underlying subject that agrees with the perfective participle, and not the direct object, especially if similar pronominal affixes had become obligatory for intransitive verbs (as has happened in Kashmiri and Marathi). Thus, reinterpretation of ergative perfective participles plus subject/agent pronominal affix as perfective verb stems plus personal endings agreeing with the underlying subject would make the perfective past tense more regular with respect to verb agreement in other tenses.

8.7. In this section, we have seen that Nepali developed personal endings in the perfective past tense agreeing with the underlying subject from "pronominal affixes" of some uncertain origin. Comparing data from other IA languages in which perfective tense ergativity like that in Hindi is modified in some way, we saw that these languages may develop nonergative from ergative syntax and in so doing, acquire certain properties of verbal morphology and subject noun marking. I then suggested that the acquisition of these properties was due to (a) their own interaction and development and (b) changes/factors independent of the perfective tense system. And in Nepali, the loss of grammatical gender and development of the dative/accusative postposition would have created a situation in which the morphology of the perfective participle when used as a main verb would have been drastically reduced. Then the most salient distinction the participle would have made would be the differences in the pronominal affixes. Reanalysis of these distinctions as being made obligatorily by the participle could lead to nonergative agreement. Thus, the properties of languages with pronominal affixes and independent developments in the languages may conspire to introduce nonergative syntax in the perfective tense inherited from the OIA ergative system.

9. The Nepali Compound Perfective Tenses.

9.1. As mentioned in section 7, the Nepali perfective participle is used as

part of compound verbs, as an attributive participle, and as the main verb of conditional dependent clauses. As a compound verb and attributive participle, the perfective participle functions as an adjective, agreeing with its head noun in gender and number; the conditional participle functions as a main verb, but unlike the participle in the simple past, it does not change form for agreement in person with its subject. The compound verb, attributive, and conditional participles are also grouped together because the OSN-developed perfective participle formed with the verb stem plus yāko seems to appear in all these uses at some point, whereas this new form of the perfective participle never is used for the perfective past tense.

The Nepali perfective participle would have inherited MIA ergative syntax in these functions as well as in the simple past, but there have been changes in the syntax of the participle in these environments during the history of the language. In this section, I shall discuss the development of the perfective participle in these three functions, and examine the changes that have taken place in its syntax.

9.2.1. When we look at the perfective participle in older forms of Nepali, we find that all three functions discussed above are present, but that OMN and OSN differ in the forms of the perfective participle used.

In the OMN data, the yā-participle, that which was inherited from MIA, is used as a main verb (75) and as an attributive participle (76):

- (75) tai bhāṣā ma pasā ki akryā chū (1376)
that-emp. promise-FS I gift do-pp-FS exempt-pp be-1S

'I have made this promise a gift'

- (76) piutharpu rāja kari akryā bhākhā pasā bhai (1336)
reign do-cp exempt-pp promise-FS gift be-pp-FS

'having been authorized in Piutharpu, this exempted promise has become a gift'

There are no clear examples of the conditional ya-participle in the OMN data.

9.2.2. In OSN, all three functions are attested with the yā-participle. Examples are given below of intransitive (77) and transitive (78) compound perfective tenses, attributive participles (79), and conditional clauses with the perfective participle (80).

- (77) a. sakram sāi-ki yesi mayaṁ bhai-cha (1604)
-gen.-FS such gift-FS be-pp-FS-be-3S

'such has become a gift through Sangram Shah'

- b. rupayā dasa rayā kṣan (1679)
ten remain-pp-MP be-3P

'ten rupees remained'

- c. mathesa-vāṭa māhājan-kā mānisharu rupiyā likana
 -from -gen.-MP man-pl. take-cp
ihā āi rahyā chan (1766)
 here come-cp remain-pp-MP be-3P
 'having taken money, having come here, Mahajan's men from
 Mathesa have stayed'
- d. vairi-kā cājo nabujhi pānsiṅār-kā pallā-cheu
 enemy-gen.-O plan not-understand-cp -gen.-MP next-near
hāmra guhār jānyā mānis pātlai pugna gaya-chā (1792)
 our-O help go-inf. man few-emp. to arrive go-pp-MP-be-3P
 'not understanding the plan of the enemy, the men who arrived
 to help us near Pangsingtar came in few numbers'
- (78) a. 2 ālā motipur-kā 2 ālā vaksi diyā chāu (1529)
 field-MP -gen.-MP field-MP give-cp give-pp be-1P
 'we have given two fields in Motipur'
- b. buḍhā vāgh-le vaḍā sima-mahā pāri vaṭuvā-kana
 old-O tiger-agt. big-O marsh-in trap-cp traveller-dat.
māryo thyo (1776)
 kill-pp-MS be-pst.-3S
 'having entrapped him in the big swamp, the old tiger
 killed the traveller'
- c. pachillā ciṭhi-ko javāph hāmi-le leṣi-rākhyā-thyāu (1792)
 last-O letter-gen.-MS answer we-agt. write-cp-place-pp-be-pst.-1P
 'we wrote our answer to the last letter'
- d. timiheru-le aneka prakār-kā pāp gari rāṣyā-chau (1798)
 you-pl.-agt. many way-gen.-MP sin do-cp place-pp-be-2P
 'you have committed sins in many ways'
- (79) a. tilāga-vāṭa lyāyā tilauro ghoḍā l gayāko cha (1590)
 -from bring-pp black-white horse go-pp-MS be-3S
 'one black-and-white horse brought from Tilanga was presented'
- b. gāi na-bhayā mola diṇu (1723)
 cow not-be-pp price to give
 'to give a price that isn't a cow'
- c. stridoṣa bhayā stri-ko culatho dhoi pina
 woman-sin be-pp woman-gen.-MS braid wash-cp drink-inf.
dinu (1752)
 to give
 'to give to drink water washed through the hair of a woman
 having a woman's disease'

- d. kāṭhmādaū-le khosyā ādhā gorkhā-kana dinu (1757)
 -agt. open-pp half -dat. to give
 'to give Gorkha half what is opened by Kathmandu'
- (80) a. dhuhā-le māryā prājāpatya garnu (1723)
 rock-ins. strike-pp sacrifice do-imp.
 'if you strike with a rock, do a sacrifice'
- b. karāra na-rākhyā pancamahāpātak lāgos (1757)
 promise not-keep-pp five-great-sin attach-inj.
 'if you don't keep this promise, may the five great sins be attached to you'
- c. testā sāidhuvā-lāi rāsyā pheri dhāmdhum hola (1767)
 such rebellors-dat. place-pp again revolt be-3S-fut.
 'if we keep these rebels, there will be another revolt'
- d. ghā na-banyā aba hāmi-le sukhim-sāga
 union not-be made-pp now we-agt. -with
ladnu parnyā cha (1774)
 to fight fall-inf. be-3S
 'if there's no union, then we will have to fight Sikkim'

We can note the following characteristics of the yā-participle:

(1) Generally, the form used is verb stem plus yā, which would be the oblique or plural masculine form, although there is some evidence that a feminine -i form was possible, and that the singular masculine form in -yo also occurred. The variation in form only occurs in the compound verb use, (77) and (78).

(2) Since yā is the form used as an attributive participle, this perfective participle does not agree with its head noun in number and gender. The compound verb participle may have agreed with its logical subject at one time, but yā seems always to be an option in that use. The conditional form, like the attributive, is fixed.

(3) The attributive yā-participle is ergative; the compound verb yā is agentive in the context of its verb phrase, because it agrees with the logical subject of the sentence. However, we really can't tell whether the participle in a compound verb is agreeing with nothing, the agent, or the object without certain crucial forms occurring, and as discussed in the previous section, it is difficult to find a nonmasculine form eligible for agreement as a direct object of a perfective participle. The yo/yā distinction between masculine and plural subjects is not maintained in the data, but obviously it can occur. The conditional forms would not agree with another constituent, because they represent reduced dependent clauses with no syntactic connection with any other constituent in the main clause; thus, their invariant forms in yā is not surprising. As the conditional participle is a perfective participle, we would expect the agents of transitive verbs to be marked with le, and the subjects of intransitive verbs to be unmarked,

just as those in conjunctive participial clauses.

Two of these facts are crucial for understanding the development of the syntax of the compound perfect tenses in Nepali: (1) the compound verb yā-participle is agentive in syntax like the perfective past; and (2) the syntax of the attributive yā-participle is ergative.

9.2.1. In OSN data from the 16th century onward, a new form of the perfective participle appears--the yāko-participle. We immediately find in being used in the compound verb and attributive functions. Below are given examples of intransitive (81) and transitive (82) compound perfect verbs with the yāko-participle and also the yāko-participle used attributively (83):

- (81) a. cār rātā pāṣā gayāka chan (1590)
four red-MP blanket-MP go-pp-MP be-3P
'four red blankets were presented'
- b. 1 pāulo sun gayāko cha (1590)
gold go-pp-MS be-3S
'one paulo of gold was presented'
- c. kāski-kā janā dvi vāman yahā vasyākā chan (1774)
-gen.-MP man two Brahman here stay-pp-MP be-3P
'two Brahmans from Kaski have stayed here'
- d. savai tirth-viṣe ma pugyāko chu (1798)
all-emp. pilgrimage site-in I arrive-pp-MS be-1S
'I visited all the pilgrimage sites'
- (82) a. van pāṣo inu tin janā-le hāmu diyāko cha (1590)
forest hillside these three man-agt. we-dat. give-pp-MS be-3S
'these three men have given us the forest and hillside'
- b. yo vahutai-vāra vaidye-le anabhova garyāko cha (1773)
this many-emp.-time doctor-agt. experience do-pp-MS be-3S
'doctors have experienced this many times'
- c. unai-ki maiyā hāmi-le lyāi pāli
she-emp.-gen.-F daughter we-agt. bring-cp nurture-cp
rāsyāki chan (1800)
place-pp-F be-3H
'we took her daughter in and raised her'
- d. savai mātraheru-kana mai-le japyākā chan (1798)
all-emp. incantation-pl.-dat. I-agt. repeat-pp-MP be-3P
'I repeated all the incantations'

- (83) a. ma śrī śrī śrī mähārājā muktisāhi silim sāhi mähārājā-ko
I -gen.-MS
mayā bhayāko jagā (1591)
gift be-pp-MS place
 'the place which was a gift from me, Shri Shri Shri Maharaja
 Mukdishah Silim Shah'
- b. kuhyāko māsu khāi (1643)
rot-pp-MS meat eat-cp
 'having eaten rotten meat'
- c. paili kahyāki strin-hoi haur stri-ko prasāga garnu (1723)
first say-pp-F wife-than other wife-gen.-MS coitus to do
 'to have sex with a wife other than the one called first'
- d. thakāi bhayākā roga-kana mrga-ko māsu
weary-cp be-pp-O sick-dat. chicken-gen.-MS meat
śānu sukh ho (1752)
to eat health be-3S
 'it is healthy for a sick man who is tired to eat chicken meat'
- e. bhāḍela bhanyākā paradesi merā iṣṭā hau (1759)
say-pp-MP foreigner my-MP friend be-3S
 'my friend is a foreigner called Bhandela'

We can see in these examples that the attributive yāko-participle is ergative like the attributive yā-participle, i.e., the head noun of intransitive verbs is the subject (cf. 83a, 83b, 83d), and the head noun of transitive verbs is the direct object (cf. 83c, 83e). The present perfect formed with the yāko participle is also ergative: the intransitive verbs in (81) agree with their subjects, and the transitive verbs in (82) agree with their direct objects.

9.2.2. The yāko present perfect tense and attributive participle are new formations in OSN. Two pieces of evidence support this conclusion: (1) we don't find examples of the yāko-participle until the late 16th century--well into the OSN period; and (2) no equivalent formations are found in other Indian languages. 11

The compound verb, conditional, and attributive uses of the yā-participle in Nepali are equivalent to the uses of the perfective participle in other Western Indian languages in morphology and structure, if not always in syntax. So, we can assume these forms are inherited from MIA. The yāko-participle appears in documents of the late 16th century, and at that time, it is being used in both compound verb and attributive functions. Since there is little data between 1450 and 1550, we cannot see it developing as a form of the perfective participle, but its origin seems clear from the evidence of its use in OSN.

9.3.1. The source of the yāko-participle is probably the extension of the perfective participle in yā by the genitive postposition ko/kā/ki. In Nepali, any participle is commonly used in a sentential clause with various postpositions, for example:

- (84) a. meri janmauti qhoyā ākhara paḍhayā-kā
 my-FS horoscope-FS make-pp letter read-cause-pp-gen.-0
prasāda golhu joisṭ kanakapatra-ki bhāṣā
 favor -dat. copperplate-gen.-FS promise-FS
pasā kari akryā chū (1336)
 gift do-cp exempt-pp be-1S
 'I have given the promise of this copperplate to Golhu Joisi
 in return for teaching me to read and making my horoscope'
- b. pachi pheri vinti gardā-mā śrī muktisāhi
 after again request do-prs. part.-in
silimsāhi mahārājā-le mahyā bhayāko jagā (1591)
 -agt. gift be-pp-MS place
 'this place which has become a gift through Shri Maharaja
 Muktishah Silim Shah, after requesting again'
- c. yo hitopadeś sunyā-le sāskṛt vāṇi bujhincha (1776)
 this fable hear-pp-ins. refined conduct understand-pas.-prs.
 'through having heard this fable, one can understand refined
 behavior'

Participial clauses with postpositions like *ma*, *le*, etc. usually would arise as dependent adverbial clauses indicating manner, means, etc. As a result, they would have no necessary syntactic relation to other constituents of the main clause. However, such dependent clauses constructed with the genitive postposition *ko* must arise as attributive phrases and, therefore, inside an NP. Just as attributive, perfective participial clauses would appear in the NP structure (85a), so would clauses with *ko* originally have appeared in a structure like (85b), unlike the adverbial clauses which could be dominated directly by the main S as in (85c).

- (85) a. [[S] N]_{NP}
 b. [[[S] ko] N]_{NP}
 c. [[[S] le]_{ADV} NP VP]_S

Eventually, the *yā* + *ko* sequence became a single morphological unit, but the attributive participial clauses with the *yāko*-participle retained the ergative syntax of the clauses with the *yā*-participle already in use. The *yāko* clauses have the *yā* clauses as their source, and in both instances, the structures contain attributive perfective participial clauses. Thus, the form and syntax of the *yāko*-participle can be explained if we assume its origin in such embedded attributive clauses.

9.3.2. After being established as an attributive form of the perfective participle, *yāko* spreads in two directions that are evident from the OSN data. First, it is established as a variant of the *yā*-participle used attributively, so that their use neutralizes their distinctions in form and origin. And second, the *yāko*-participle begins to spread to other environ-

ments in which the yā-participle appears, particularly, in the compound perfect tenses. The data show that the variation in use of yāko and yā reflects their competition as variants in the attributive function arising first, and the use of yāko-participles as compound verbs developing more slowly and sporadically.

If we look at the distribution of yā- and yāko-participles in 27 OSN documents, as shown in Table 4, we find that during this period yā and yāko increasingly become variants in the attributive function, but that the choice of yā or yāko in the compound verb function seems dependent upon the individual document or writer.

<u>Attributive Use</u>				
<u>Date</u>	<u>yā only</u>	<u>both</u>	<u>yāko only</u>	<u>neither</u>
1498-1591	2	1	0	2
1604-1692	0	1	2	5
1712-1723	1	2	0	4
1743-1773	0	5	0	2

<u>Compound Verb Use</u>				
<u>Date</u>	<u>yā only</u>	<u>both</u>	<u>yāko only</u>	<u>neither</u>
1498-1591	2	0	2	1
1604-1692	3	2	0	3
1712-1723	1	0	1	5
1743-1773	1	0	2	4

Distribution of yā and yāko Participles

Table 4

We can see in Table 4 that up until the latter part of the 18th century the distribution of the attributive yā- and yāko-participles is mixed--some writers use only one or the other, some use both. But in the mid-18th century, most of the documents have both forms appearing as the attributive participle, an indication that they may be alternates in that environment. The distribution of the two forms in compound verbs throughout the period looks very much like the early distribution of the two forms in the attributive function, i.e., writers use either one or the other. This evidence suggests that during the OSN period the yāko-participle is spreading into the compound verb function but somewhat behind the pace of the yāko-participle in the attributive function, which would be expected if the origin of the yāko form lies in the attributive use.

9.3.3. The evidence we have examined in this section supports the claim that the origin of the yāko-participle is in attributive, perfective participial clauses. There are three arguments for this: (1) since the form appears to

be the perfective participle in yā plus the genitive postposition ko, then attributive origin is likely because a ko phrase should appear within a noun phrase; (2) the syntax of the yāko-participle is ergative, and the only clearly ergative construction in Nepali at this stage is dependent attributive clauses with the yā-perfective participle, and so it seems likely that the yāko-participles are or were instances of the ergative yā-participle, or that the new participle adopted the syntax of the structure that was most similar to it; (3) the distribution of yā and yāko forms in the documents shows that both can easily appear in the attributive function, while during the same period they do not at all seem to be variants in the compound verb use; since neither compound verb form is in the process of dying out at this point, it would appear to be the case that the lack of variation indicates a newer development, and the common side-by-side distribution indicates an older one. Thus, whatever other characteristics it may have at this point, the principal characteristic of the yāko-participle appears to be its attributive use.

9.4.1. The "attributiveness" of the yāko-participle also appears to be crucial for the pattern of its spread in the language. The yāko-participle obviously is extended to the compound verb environment, but there are two forms of the perfective participle to which it does not spread. First, we don't find the yāko form being used as the perfective participle in the simple past tense,¹² and second, the yāko-participle never establishes itself as the form used in conditional clauses. The reasons why this pattern occurs are the difference in function between the attributive and compound verb participles on the one hand and the perfective past and conditional participles on the other, and the distinctions that the use of two forms of the perfective participle make possible.

9.4.2. What separates the attributive and compound verb uses of the perfective participle from the simple past and conditional clause uses is that the former two are both adjectival while the latter two are essentially main verb uses. The perfective participle in the simple past and in conditional clauses is used as a verb, the latter agrees with nothing, and the former agrees in person, number, and gender with its logical subject. The attributive and compound verb participles, however, are both adjectival in that (a) they may agree with their head or modified noun in gender and number, and (b) they appear both adnominally [ADJ N] and predicately [N ADJ BE]. These two characteristics are not found with the participle used as a main verb alone, and so, the two "main verb" uses of the perfective participle--the simple past and conditional--are not really appropriate candidates for the appearances of the "adjectival" yāko-participle.

9.4.3. The development of the yāko-participle in the attributive function also makes possible the disambiguation of the function of the perfective participle in certain contexts. There are examples like (86) in which the conditional interpretation of the yāko-participle seems possible, but they are rare in the OSN period, and they are not really a factor in later stages.

- (86) bahut pāni piyāko pāk maha-le gara (1752)
 much water drink-pp-MS cooking honey-ins. do-inj. (?)
 'if you've drunk much water, cook with honey'

One reason why the spread of the yāko-participle to the conditional is marginal at best is that the conditional participle is not "adjectival" as discussed above. Another reason is that the use of the yāko form for attributive and the yā form for conditional clauses polarizes the distinction between the two.

If the language establishes a distinction between the yāko and yā perfective participles, and specializes the former for attributive and the latter for conditional use, then there would be no possible ambiguity of function in sentences like those in (87).

- (87) a. paryā veda-ko birsanu (1752)
 read-pp -gen.-MS to forget
 'to forget the learned vedas'
 'if you've read the vedas, to forget them'
- b. aphim lāgyā marca ki śutho śānu (1764)
 opium attach-pp pepper or ginger eat-imp.
 'eat pepper or ginger with opium mixed in'
 'if you've taken opium, eat pepper or ginger'

These sentences may, in fact, not be ambiguous in context, but their construction illustrates how ambiguity could arise from the use of the yā-perfective participle in both attributive and conditional contexts. If, however, one form was used for attributive contexts and another for conditional ones, then any ambiguity in function would be eliminated.

Kurylowicz' (1945-1949) fifth law of analogy suggests why one form of the perfective participle should be specialized for one function and another form for a separate function. Using yā or yāko for all three functions of the perfective participle--attributive, compound verb, conditional--identifies the various perfective participle occurrences with each other; in other words, by creating the distinction in use between yā and yāko, the language is abandoning the concept that all perfective participles have the same form. In order to create the distinction, the two competing forms must be used in separate contexts. By using the yāko form for attributive participles, the language acquires the concept that these perfective participles are attributive and are structurally part of a major constituent of the sentence, whereas the conditional yā forms are not syntactically related to other major constituents for they are dependent, sentential clauses. Kurylowicz' fifth law suggests that the latter distinction should be more central and the abandoned distinction more marginal. Without attempting to define what is marginal or central, we can at least determine that the new distinction--some perfective participles are attributive only, and others are only main verbs of dependent clauses--carries more information than the old one, because the perfective participles that are used attributively are now recognizably "adjectival" and those used in conditional clauses are not, like other main verbs. Thus, the specialization of the yā and yāko forms polarizes the distinctions in use of the perfective participle, and in so doing, the various uses and contexts in which the perfective participle appears become more transparent.

9.5. Before discussing further developments of the yāko-participle, we should examine more closely its spread into the compound verb use. It is clear that the yāko-participle does not spread as a simple variant of the yā-participle in the compound perfect tenses. If garyā and garyāko, for example, were simply variants, then we would expect that the syntax of sentences in which garyāko appears to be equivalent to that of sentences in which garyā appears in a compound verb construction. This is not the case, as we have seen at the beginning of this section; sentences with compound verbs formed from the yā-participle are agentive in syntax, while those with verbs formed from the yāko-participle are ergative. Thus, the ergative syntax of the attributive perfective participial clause was transferred to constructions in which the yāko-participle functions as a compound verb.

The explanation for this seems to depend upon the adjectival nature of the attributive yāko-participle. In Nepali, adjectives may appear either in the prenominal or predicate position. If the yāko-participial phrase is considered to be an adjectival phrase, then by analogy it too should be able to appear prenominally or predicatively. Thus:

$$\begin{array}{l}
 (88) \quad [\text{ADJ}] \text{ N} : \text{ N } [\text{ADJ}] \text{ be} :: \\
 \quad [\text{N}_i \text{ pp} + \text{ko}] \text{ N}_i : \text{ N}_i [\text{N}_i \text{ pp} + \text{ko}] \text{ be} \\
 \quad \quad \quad \text{or} \\
 \quad [\text{N-le N}_i \text{ pp} + \text{ko}] \text{ N}_i : \text{ N}_i [\text{N-le N}_i \text{ pp} + \text{ko}] \text{ be}
 \end{array}$$

As the underlined solutions to the four-part analogies above suggest, the ergativity of sentences with yāko compound verbs can be explained if we assume that yāko-participles spread as components of adjectival phrases rather than as simple variants of the perfective participle. The attributive origin of the yāko-participle thus explains not only the contexts into which this participle spreads but also the structures in which the yāko-participle appears in those environments into which it does spread. (More discussion of the syntactic changes that occur as the yāko-participle spreads to the compound verb function can be found in the Conclusions.)

9.6. We have seen that through the OSN period, the yāko-participle establishes itself as an alternate of the yā-participle in the attributive use. It also spreads to the compound verb use, but compound verb forms with the yā- and yāko-participles do not really occur commonly together until the late 18th and early 19th centuries. Thus, the yāko-participle acquires an equal status with the yā-participle first in the attributive function and then in the compound verb function. The yāko form may spread marginally to the conditional function but is never productive, just as it never occurs in the context of the simple past perfective participle. Syntactically, the yāko-participle is ergative both as an attributive and compound verb participle. Thus, the spread of the yāko form to the compound verb function reintroduces ergative syntax into the Nepali verbal system. But, the present and past perfect tenses formed with the yāko-perfective participle are the only ergative verb tenses, the yā-participle compound tenses and the perfective past being agentive, and all other tenses principally nominative.

9.7.1. During the early Modern Nepali period, the yāko-participle begins to take over the attributive function completely. In the present and past perfect tenses, the yāko and yā forms become variants, and the compound main verbs formed with the yāko-participle become agentive like the yā-participle tenses.

Kellogg (1893: 306-309, Table XX) states that the yāko form is used attributively in both adnominal and compound verb contexts. But as an example of the present and past perfect tenses, he gives the conjugated forms of the yā-participle (i.e., the simple past forms) with the conjugated forms of cha and thiyo.

Grierson (1916, iv: 38-39) says the compound perfect tenses are usually formed with the yāko-participle; he gives examples of yā forms only with the intransitive verb rahnū 'to remain'. Grierson does allow the option of using the yā or yāko forms for the attributive participle. Both Kellogg and Grierson point out that in all the perfect tenses, Nepali uses "eastern" syntax, that is, the subject or agent controls verb agreement. So, Grierson gives examples like:

- (89) a. tes-ko chorā-lāi mai-le kuḥeko chu
 him-gen. son-dat. I-agt. strike-pp-MS be-1S
 'I have beaten his son'
- b. timiharu-le yei pani paryekā chauna
 you-pl.-agt. this-emp. also read-pp-MP be-2P-neg.
 'But have you not read this?'

In both these sentences, the verb phrases clearly agree with the agent.

At this point then, there is no syntactic difference nor clear restriction on the use of yā- and yāko-participles in the present and past perfect tenses. The yāko form does seem favored in the attributive use.

9.7.2. The take over by the yāko-participle of the attributive use is a case in which there were two competing forms--yā and yāko--for one function, and, as predicted by Kurylowicz' (1945-1949) first law of analogy, the bi-partite morpheme replaced the unitary one. The yāko form of the participle is marked as an attributive phrase twice: the yā stem of the verb is used to mark adjectival clauses, and the ko postposition marks attributive phrases also. So in the attributive function, the yāko-participle seems favored over the yā-participle because of its form alone.

9.7.3. The development of agentive syntax in the yāko present and past perfect tenses indicates that once the attributive yāko was established in the compound verb function, its parallelism with the yā compound verbs and the simple past--all of which were already agentive--became more important than its adjectival phrase origin. In other words, the yāko-participle in this use does share the "main verb" function with the yā-participle in the compound perfect tenses and the perfective participle of the simple past. And

these main verb perfective participles are controlled by the underlying, nominative subject, rather than the ergative subject. And so this factor--the main verb characteristic--determined the syntax of the yāko compound perfect tenses at this stage, after their entrance into the tense system from their attributive phrase origins. The resulting syntactic split between the two functions of the yāko-participle, ergative as an attributive participle, agentive as a compound verb, would not have been unprecedented, for the various uses of the yā-participle had been participating in the same syntactic split for several centuries.

9.8.1. Further developments have taken place in Modern Nepali. The yā (modern e) form is not given as an alternative for the attributive participle in grammars like Clark 1963, or Verma & Sharma 1979, indicating that the yāko (modern eko) form has completely taken over the attributive function.

The same take over may be in progress in the compound verb function. The eko-participle is now the participle used in the present perfect tense; the e-participle plus the present tense of the auxiliary is now used for the tense of surprised discovery or historical narration (cf. Meerendonk 1949; Clark 1963; Verma & Sharma 1979). The eko and e forms are considered alternates in the past perfect, i.e., the perfective participle plus thiyo.

Thus, Modern Nepali has the present perfect:

- (90) a. hāmi śikāgo-mā basekā chāu
 we -in stay-pp-MP be-1P
 'we have lived in Chicago'
- b. mai-le bhāt khāeko chu
 I-agt. meal eat-pp-MS be-1S
 'I have eaten dinner'

the tense of surprised discovery:

- (91) a. timi ta sāhrai sukuṭi bhai chau
 you-P very-emp. thin be-pp-FP be-2P
 'I see you've become very thin'
- b. ace, mai-le ta sāco vahĩ choḍe chu
 oh I-agt. key there leave-pp-MS be-1S
 'oh, that's where I left the keys'

and the past perfect:

- (92) a. rām-le ciṭhi pare thiyo
 -agt. letter read-pp-MS be-pst.-3MS
 'Ram had read the letter'

- b. hāmi-le hijo buwā-lāi dekhekā thiyāu
 we-agt. yesterday dad-dat. see-pp-MP be-pst.-1P
 'we had seen dad yesterday'

(Sources: Meerendonk 1949; Clark 1963)

So between the end of the 19th century and the mid-20th century, the yāko-participle completely replaced the yā-participle as the attributive perfective participle and in the compound present perfect tense. The old yā-participle has been forced into a minor function in its construction with the present of the auxiliary verb. The participles continue to compete in the past perfect tense construction.

9.8.2. The Modern Nepali present perfect formations provide an example of Kurylowicz' (1945-1949) fourth law of analogy: new formations take over primary functions. The present perfect is by far the most common compound tense formation with the perfective participle, and in Modern Nepali, only the new eko form is used for that function. The old present perfect with the e-participle has been relegated to a secondary and pragmatically-marked function. Whether this generalization holds for the past perfect use of both eko and e forms would require a fuller study of its use and frequency as compared to the present perfect.

9.9. The spread of the yāko-participle in Nepali can be diagrammed as in Table 5:

Stage	Attributive	Compound Verb	Conditional
I	<u>yā</u>	<u>yā</u>	<u>yā</u>
II	<u>yā/yāko</u>	<u>yā</u>	<u>yā</u>
III	<u>yā/yāko</u>	<u>yā/yāko</u>	<u>yā(yāko)</u>
IV	<u>yāko(yā)</u>	<u>yā/yāko</u>	<u>yā</u>
V	<u>yāko</u>	<u>yāko(yā)</u>	<u>yā</u>

Spread of yāko vs. yā in Participial Functions

Table 5

At the earliest stage, the inherited perfective participle in yā is used for all three participial functions. The yāko form enters as an attributive participle, and then the yāko form spreads to all environments of yā, although it is never established in the conditional function. By Stage IV, yāko has virtually eliminated the competition of yā as the attributive participle, and in the most modern stage, yāko is in the process of ousting yā in the compound verb function as well.

We can see Stage I in the OMN materials, and OSN represents Stage III. Stage II is reconstructable from what we know of the origin of the yāko-participle and its early distribution. Stage IV is evident from turn-of-the-century linguistic studies of Nepali, and Stage V can be found in Modern Nepali.

9.10. As we have seen, the progress of this spread of the yāko-participle has an effect on the syntax of sentences with verbs in the compound perfect tenses. The environments in which ergative syntax would have been inherited from MIA are clearly ergative only in a few examples at the earliest stage of Nepali. Already in OMN the ergative syntax of the perfective tenses has been weakened by the use in the compound perfect tenses of the auxiliary agreeing with the pronominal agent of a transitive verb rather than the direct object. This agentive syntax is found also in the perfective past in OSN. The transfer of the attributive yāko-participial phrase to compound verb environments reintroduces ergative syntax, because the yāko form spreads as an attributive participle in an adjectival phrase with the ergative syntax of the perfective attributive participle intact. Once established as a component of the compound verb construction, the main verb function becomes more important than any attributive characteristics, and the yāko present and past perfect tenses adopt agentive syntax, thus agreeing with the perfective past and the yā perfect tenses. Thus, as most Indian languages, Nepali develops a split-syntax system, using nominative syntax in the non-perfective tenses, and agentive syntax in the perfective ones. For a while, Nepali develops a split-syntax system in the perfective tenses as well--agentive with main verbs formed from the yā-participle and ergative with those formed from the yāko-participle. The ergative syntax is comparatively short-lived, as compound verbs with the new participle adopt the syntax of those with the old participle.

9.11. Thus, the spread of the yāko-participle illustrates syntactic diffusion, the gradual spread of a syntactic construction in an increasing number of environments, as can also be found in the Polynesian shift from "accusative" to "ergative" morphology (Chung 1977), the Brazilian Portuguese loss of verb agreement (Naro 1981), the loss of the negative particle ne in French (Ashby 1981), and the change in object-marking in Nepali (Wallace 1981). The essential component of this diffusion process is that change--syntactic or phonological--proceeds in a grammar through variation, as discussed by Labov and associates (cf. Labov 1963, 1966) and Wang and associates (cf. Chen & Wang 1975).

9.12. With the loss of ergative syntax in the yāko present and past perfect tenses, Nepali becomes completely oriented toward agentive syntax in the perfective tenses. Variation in nominative and agentive syntax in other tenses has been discussed by several linguists, including Abadie 1974, and Kachru & Pandharipande 1979. I hope to investigate this variation in Modern Nepali further to see what historical developments it represents.

10. Conclusions.

10.1. In this study, we have discussed several causes for syntactic change. Analogy has played a role in certain changes that have occurred concerning the Nepali perfective participles, and the progression of change through variation has led to developments in the Modern Nepali perfect tenses. The next question we might ask is whether these various changes reflect certain principles of syntactic change, i.e., whether there are any restrictions or generalizations about syntactic change that are properties of language or the way language works. (This is a question which I hope to discuss in some detail in future studies with more data from Nepali history.)

10.2. At least one serious attempt to constrain syntactic change within a well-motivated theory of grammar is undertaken in Lightfoot 1979, and I would like briefly to examine one of his principles of change in light of the evidence presented here.

Working within an EST framework, Lightfoot suggests that those principles which restrict the form of a synchronic grammar must also apply to syntactic change, and presumably vice versa, for no explanation for a syntactic change should, he claims, be posited that would fall outside the boundaries of what could be posited as a rule or constraint for a synchronic grammar.

This does not seem to be a particularly controversial position; however, it does assume much about linguistic analyses. There are quite a few differences between synchronic and historical analyses. Theories of grammar, i.e., synchronic grammars, usually do not use historical data in postulating rules; historical analyses attempt to explain data from a variety of texts recorded often over a wide time span, while synchronic analyses are usually attempts to represent one speaker's knowledge; synchronic and diachronic analyses try to explain what data occur, but the former also tries to explain what data are not allowed, while the latter can really only account for what data do not occur; historical analyses tend to be "directional" because a certain change has occurred, although it is obvious that, as in synchronic grammars, there can only be environments with potential for reinterpretation, which is itself unpredictable. So, while this position seems important, it also seems that it could encounter difficulties which are not the fault of the theory but rather the problem of applying generalizations to data sets based on different assumptions.

10.3. Lightfoot would like to restrict the classes of syntactic changes that may occur. For example, he claims (1979: 126-129) that the structure preserving hypothesis of Emonds 1976 will predict that changes in syntactic rules should only occur in main clauses, and once established in those clauses, they may trickle down to embedded clauses. This argument is based on Emonds' claim that generally only in main clauses can structures not generated by the phrase-structure rules occur, i.e., non-structure-preserving rules apply only to root sentences. Since a syntactic change would involve an innovation in sentence structure, its starting point would have to be a transformational rule that does not produce a structure already generated by the base. A change may become possible in embedded clauses after a reanalysis has occurred which produces modifications to the base rules for all clauses.

10.4.1. This "main-clause principle" (my term--WDW) raises some questions in the analysis of the development of ergative syntax in the Nepali compound perfect tenses, for a syntactic structure began to be used in main clauses which previously did not occur in such clauses, and which seems to have had its source in embedded clauses. Thus, at first glance, the reintroduction of ergative syntax into main clauses in Nepali and this main-clause principle seem to be at odds about the progress of this syntactic change.

10.4.2. This change may be described in three stages. The first is represented by the structures in (93) which reflect the fact that an attributive clause began to be predicated of an NP after it developed adnominally, just as other attributive phrases in Nepali may be adnominal or predicative (cf. Tanasarma 1970; Bandhu 1973).

- (93) a. NP_i [NP_i V + yāko]_S be
 b. NP_i [N-le NP_i V + yāko]_S be

From such structures, sentences like those below would appear on the surface:

- (94) a. ma (nepāl-mā) basyāko chu 'I have stayed (in Nepal)'
 I -in stay-pp-MS be-1S
 b. mai-le sipāiharu dekhyākā chan 'I have seen the soldiers'
 I-agt. soldier-pl. see-pp-MP be-3P

In (94), the ergative subjects control verb agreement, just as the ergative subjects of an attributive yāko clause would be identical to the head noun of the NP.

As far as sentences like those in (94) being derived from structures like those in (93), we have already seen in this study that rules of deletion or interpretation involving two like NPs may operate so either the main clause or the embedded NP may appear in surface structure. In fact, OSV order is not uncommon among sentences with transitive yāko compound verbs (cf. examples in 82), and that would be the result of the embedded NP in (93b) being deleted. Whether such sentences are derived from structures like (93b) originally, or derived from some other similar structure to which scrambling rules have applied is not clear, and to determine that would require another direction for this research.

At another stage, we expect the structures in (94) to be reinterpreted as being derived from a main clause rather than from an embedding, e.g.:

- (95) a. NP [V + yāko be]_{VP}
 b. [N-le]_{NP} NP [V + yāko be]_{VP}

Such an intermediate stage creates the possibility that either NP could analyzed as the subject in transitive clauses (95b). From the second stage in which reinterpretation is possible, we could then move to the third stage in which reanalysis and regularization has taken place, as represented in (96):

- (96) a. NP [V + yāko be]_{VP}
 b. [N-le]_{NP} [NP [V + yāko be]_V]_{VP}

The structures in (96) represent the fact that in stage 3 sentences with compound yāko-participle verbs have been reanalyzed so that their subject orientation conforms with the agentive or nominative syntax of the rest of the tenses in the language, and the underlying subject/agent controls verb agreement.

10.4.3. I have suggested here that this reinterpretation of an attributive clause structure as a main clause structure involved generalizing whatever

base rule generates "ergative syntax" in yāko attributive clauses to main clauses with compound perfective verbs. Positing the syntax of these compound verb clauses to have developed because the yāko-participle is a constituent of a clause rather than a variant of another participle explains why we find ergative syntax rather than agentive syntax as is found with other perfective participles.

This analysis also explains why the subject properties are split in sentences with these perfective verbs--the surface ergative subjects controlling verb agreement, and the underlying subjects/agents controlling conjunction reduction (cf. 82). Surface subjects in Nepali control verb agreement, whereas underlying subjects/agents control conjunction reduction in general. Usually these two categories are identical, but in attributive and main clauses with yāko-perfective participles, and obligational-infinitive constructions, for example (cf. Kachru, Kachru, & Bhatia 1976; Kachru & Pandharipande 1979), they are not. If there is an "ergative structure" like that represented in (95), then we can explain this split in the subject properties in both kinds of perfective clauses.

Historically, such a structure would be a relic of a much more general structure. At one time, all clauses with perfective tense should have had an ergative structure; during OMN-OSN, this structure had become restricted to embedded attributive clauses because agentive syntax developed in main clauses with perfective verbs.

But, ergative syntax in main clauses in late OSN is a new development; there should be no base rules that generate an ergative structure in main clauses. If the reinterpretation from stage 1 to stage 2 involved positing a rule that builds ergative structures from nonergative structures, it would be consistent with the main-clause principle, because a rule would be required to derive these forms not generatable by the base rules for main clauses; however, it would create a structure already present in the language, though in embedded clauses, so in some sense, it would be redundant. On the other hand, assuming the ergative structure has been generalized from embedded clauses claims that new structures may be passed from nonroot to root clauses, as the use of the yāko-participle would then have "trickled up" from attributive clauses; this, however, violates the main-clause principle in that "innovative" base rules have their source in this case in the reinterpretation of embedded clause phenomena rather than main clause phenomena.

10.4.4. Actually, the Nepali data raises a number of questions: Can there be an "innovation" in root clauses when the structure in question already appears in the language? If root clauses are the only innovative clauses, does it follow that they must also be the only sources of change in the language?

Whether this change preserves structure or not seems to depend upon the perspective from which the change is viewed. On the one hand, a new structure, one not generatable by appropriate base rules, does appear in root sentences; and on the other hand, the structure itself does appear in embedded clauses already. It is then tempting to claim no serious revision in the

language occurred, except that what was once an embedded structure was generalized to main clauses--the opposite of what is predicted by the main-clause principle.

10.5. The conflict here appears to be that the main-clause principle does not really predict what happens. This does not appear to be a failure of Emonds' structure-preserving hypothesis--it may be synchronically valid, and it may place highly-valued restrictions on syntactic change. Rather, the diachronic analog of this hypothesis suggested by Lightfoot and others (e.g. Givon 1976) seems too strong. Or, perhaps the data for which Emonds' structure-preserving hypothesis makes interesting predictions is based on different assumptions than that to which the main-clause principle is supposed to apply; and, therefore, the two are not comparable.

In any event, the data presented in this study seem to be controversial in that they offer opportunities for competing analyses, and so, further discussions of theoretical restrictions on syntactic change should take them into account.

NOTES

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² This study deals with a variety of languages with various morphological categories. For ease of reference I shall use abbreviations of traditional cases for inflections and appropriate phrases, and translate other postpositions by appropriate English prepositions. The following abbreviations are used:

pp	perfective participle	M	masculine
cp	conjunctive participle	F	feminine
inf.	infinitive form	N	neuter
cause	causative verb	S	singular
fut.	future	P	plural
pst.	past	H	honorific
inj.	injunctive	O	oblique
impf.	imperfective	nom.	nominative
emp.	emphatic marker	agt.	agentive
imp.	imperative	ins.	instrumental
pas.	passive	dat.	dative
gen.	genitive	acc.	accusative
pl.	plural marker	obj.	object

³ Bauman 1979 posits three similar trends for the loss of ergativity in Tibeto-Burman languages: (1) addition of an accusative marker (borrowed from Nepali in some instances); (2) splitting ergative and nominative constructions by person of agent; (3) separating out a subject marker from object markers in verbal affixes.

⁴Nepali does not really develop a literary language until the 19th century.

⁵The suffix -yo/-yā (spelled -yo/-e in Modern Nepali) of the perfective participle is the same as that used by most Western Indian languages to form the perfective participle from the verb stem (cf. Hoernle 1880: \$502-\$504; Grierson 1896; Beames 1872-1879, III: chap. III).

⁶All the Nepali data dated from 1350 to 1800 are extracted from documents in Pokharel 1974. The transliterations of the Devanagari script, the glosses, and the English translations are my own; any errors are my sole responsibility. Data dated 1825 are from Riccardi 1971, and the letter and number following the date indicate which story the sentence appeared in. Other Nepali data are provided with indications of sources as necessary.

⁷Split ergative patterns based on the person of the agent are also found in some Tibetan languages of Nepal (cf. Bauman 1979).

⁸The traditional labels of the Sanskrit grammarians are also unavailable, because for katariprayog the verb should mark the agent and the agent should be in the neutral case, and for karmaniprayog the agent should be marked and the verb should mark the patient.

⁹There is obviously a question whether all conjunctive participle phrases can be derived from a single structure--e.g., [[NP NP V-i] NP NP V+tense] or [NP [NP NP V-i] NP V+tense]--or whether both structures occur, or if only one, what movement rules are relevant, etc. I have used those in which the controlling NP precedes the deleted NP for convenience. (Cf. Davison 1981 and Kachru 1981 for discussion of these and related problems for Hindi-Urdu.)

¹⁰Grierson 1905 reports a variety of possible ergative or nominative constructions in various Konkani and other Marathi dialects. Most include s for 2S agents, t for 2P agents, n for 3S agents, and ni for 3P agents. Some dialects use both ergative and nominative agreement patterns for perfective transitive verbs, e.g. Kudali (194ff.); while those bordering on the Eastern Indian Oriya region (334ff.) use principally a nominative construction.

¹¹Kellogg (1893: \$497) reports that Marwari adds the suffix ḍo to the perfective participle when used as an adjective.

¹²Clark (1963: 179-180) says that the yāko-participle may appear without an auxiliary as the main verb of questions and sentences with jhaṇḍai 'almost'. E.g., timi-le ke gareko? 'what did you do?'; hātti-le māhute-lāi jhaṇḍai māreko ne āja 'they say the elephant almost killed the mahout today'.

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